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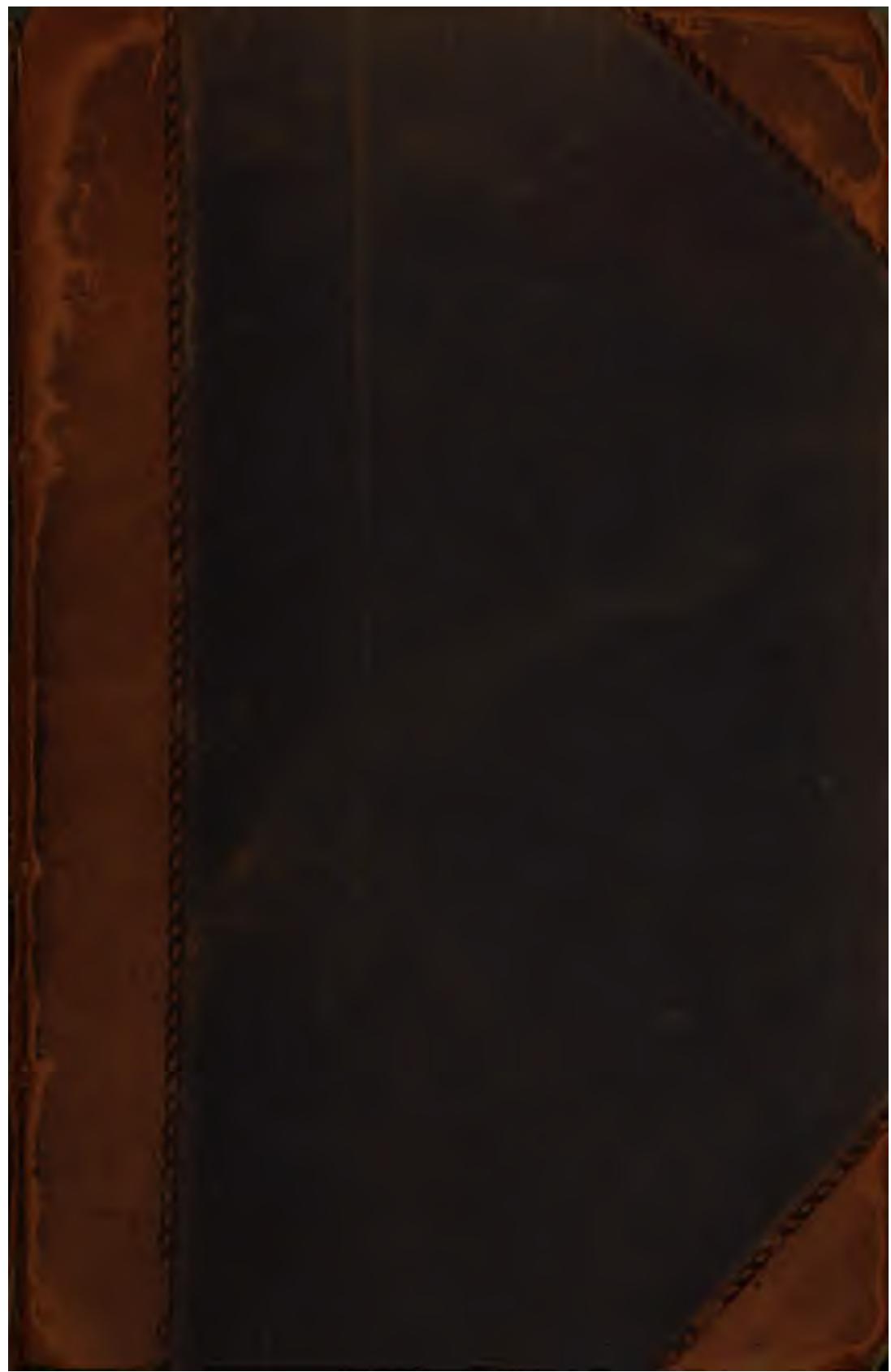
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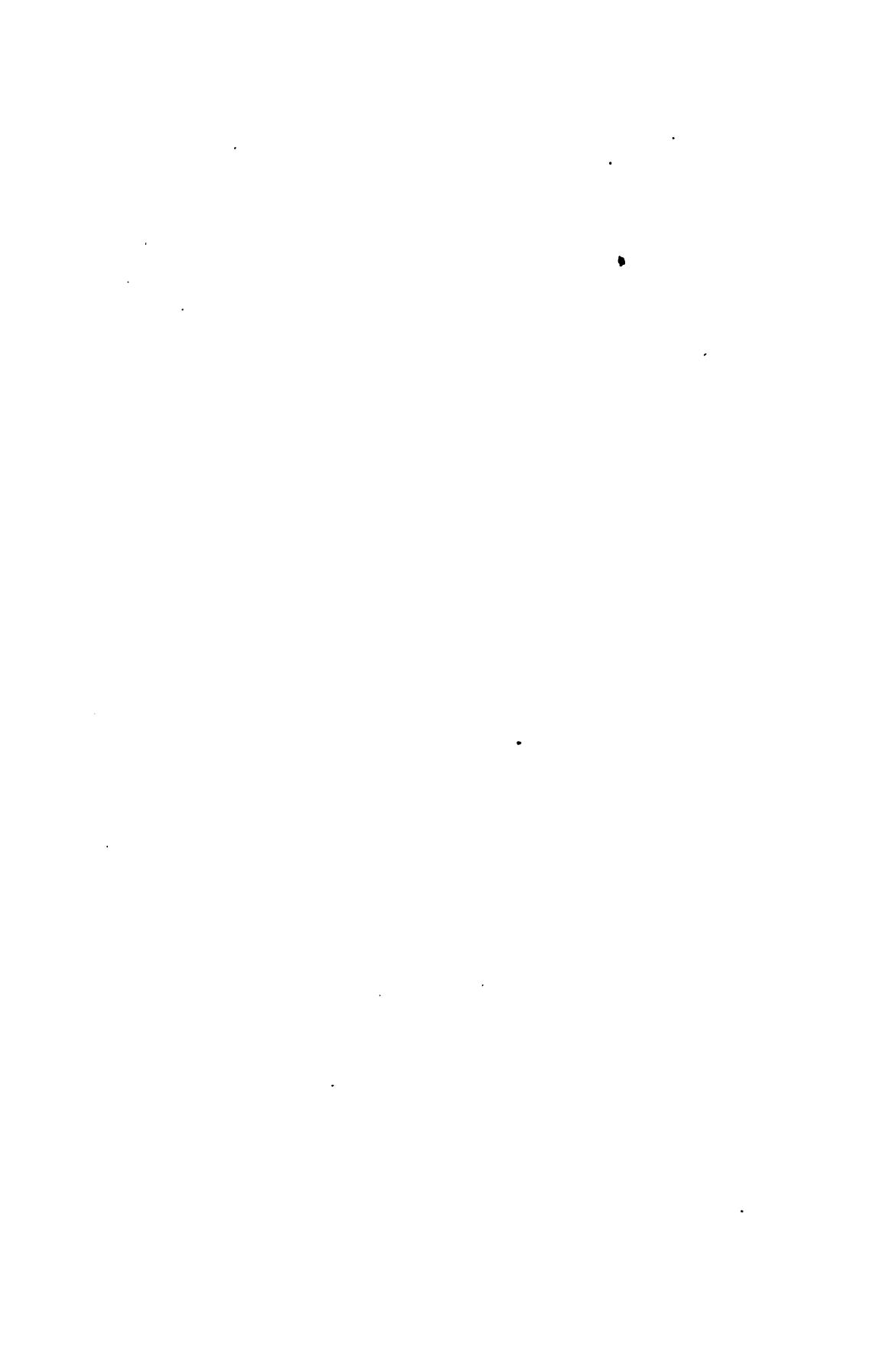
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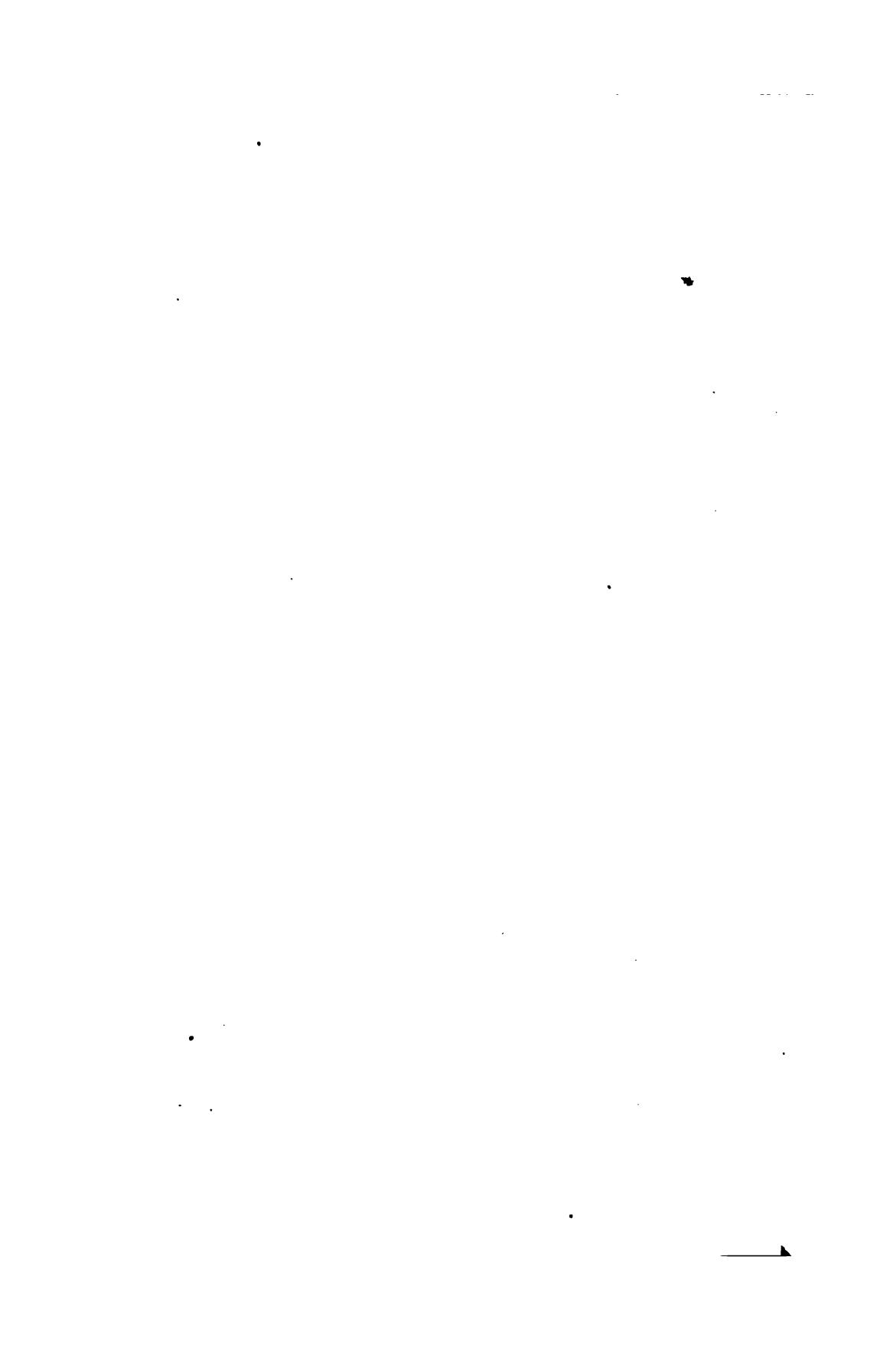
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THE MONTHLY REVIEW
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No. I.

JUNE, 1875.

VOL. IV.

Dental Education in America.

FROM a report that appears in the *Pennsylvania Journal of Dental Science* (for May, 1875) of a special meeting of the Odontographic Society of Philadelphia, we imagine that our American friends are greatly exercised at the present time on the question of dental education. The chair was occupied by Dr. Louis Jack and the meeting commenced with the reading of a paper by Dr. Noal of Nashville, Tenn. This gentleman advocates a preliminary Classical Education for Dental Students, and then an attendance in a Dental office, and at a Medical and Dental College. Dr. MacQuillen followed with some "Remarks" strongly advocating the claims of Dental as against Medical Colleges. The tone of this speech was shrewd and sensible, whilst considering the revolution that purely Dental Colleges have brought about in dentistry, in America, the worthy professor's conclusions were, from his stand-point, sound and justifiable.

Dr. Foster Flagg's "Remarks" were rather amusing than edifying, as the following extracts will show.

"It is several years since he has been in active practice. Feels here like a resuscitated corpse. Has but recently

opened his eyes again, but not widely, and has an inclination to close them again. This subject, however, has charms sufficient to arouse into earnest, active energy, any man who has the interest of dentistry as a profession at heart.

"Thirty odd years ago Hayden, Harris, Parmlee and others were interested in the status of dentistry, as we are to-day, when they started a society and a college to establish a profession. But when an effort was made to obtain medical recognition, they got the cold shoulder. It has been a bloody fight ever since, and those who are ignorant of its progress, are, perhaps, the most eager to criticize. . . .

"Dentistry is enough for me. I am satisfied to be called a dentist. The D.D.S. satisfies my ambition, but the D.M.D. is no title at all; it stands for deficient medical doctor. If the D.D.S. flies, I fly, and if it dies, I die."

In the "Discussion" Dr. Atkinson gave expression to such "exquisite fooling" that, if we had not read his observations in a Dental Journal, we should have thought we were being amused by an extract from a comic paper. But this statement must, we feel, be justified in the only way possible—that of reproducing the report as it appears.

"Dr. Atkinson said it is perhaps appropriate to call upon me to open this grand discussion. The time (fifteen minutes) is too short to do justice to the importance of the subject. I am so much of a woman as to have a desire to be courted. If I have any desire to live in any sphere, it is that of progressive dentistry. But we must go right to the root of the matter if we would gather a true system of dental education. What do we know and what don't we know? There is nothing yet settled. It will be as it has been, and the time will come when a system will be developed that will be far in advance of that we are now working in; and to prepare for this grand future, we must have our minds filled with knowledge from every source, and upon every subject. The medical profession must be the basis of dental education, or there will be no progress, no investigation. Nature called dentistry out of chaos. Now, what shall we do? Shall we go right square back and ascertain the life history of all, so as to be able to say what man is calculated to be? We stand to-day as

dentists, overtowering all other professions in our progress and investigations. I am with every man that speaks on this subject, and against every man."

It is clear that in Dr. Atkinson's estimation,

"Thinking is but an idle waste of thought,
And naught is everything, and everything is naught."

This gentleman's speeches should really be carefully collected and reprinted, they would then form, we believe, one of the most valuable volumes we could possibly desire, either for our own amusement, or our non-professional friends' bewilderment.

Dr. Garretson was naturally in favour of a special Dental Education, based on a general medical training, and with this view many of the speakers appeared to agree, notably Professor Stellwagen, who maintained that "a higher and broader status should be assumed, if Dental Education is to meet the demands of the age."

Dr. Welchens was strongly in favour of a purely special training and would entirely separate Dentistry from Medicine as a profession, concluding his speech with these words:—"The Dental profession cannot afford at this late day to go backwards for the purpose of obtaining dignity and respectability from the Medical profession."

No resolution was brought forward and no definite conclusion arrived at, we are therefore left to conclude that the fight, as to the best plan of Dental Education will be continued at the first convenient opportunity

No one in this country will for a moment wish to deny the immense amount of good that has been accomplished by the Dental Colleges of the United States, and probably the independent position which they occupy has afforded such perfect freedom, that they have been able to carry out any scheme in regard to Dental education that seemed right and good in their estimation. The promoters of these Colleges must, however, recognize this

fact, that they have themselves created the demand for a higher education, by the training they have bestowed upon their graduates, and they must be prepared to supply the want that is felt of a broader and deeper basis of professional education, or their students will assuredly go where at present only, it can be obtained, namely, to the purely Medical Colleges.

If the Dental Colleges can efficiently teach general as well as special Anatomy, Pathology, and Surgery, so much the better. If they can have beds for in-patients, so that they may properly train their students in medicine, let them do it, but unless they can do these things they had better not hinder the progress of their younger brethren by telling them that many of these things are unnecessary; rather let them stimulate their pupils to attain to the highest degree of efficiency in all that pertains to Dental Surgery, by basing their special practice upon that of which it is but a part—namely, general Surgery. All the speeches that have been or may be delivered, will never make Dentistry a separate profession, unless, indeed, those who hold this view can see their way clearly to isolate the oral cavity and its contents, from the rest of the human body.

The promoters of the Dental Colleges in the States may, if they have sufficient enterprize, collect all their materials for teaching under one roof, and so economize the time and labour of their students, but they will then simply be teaching Medicine and Surgery, at a Dental College, instead of letting their pupils go to a Medical College, where it would probably be done much more efficiently. They in no wise separate Dentistry from Medicine in fact, though they may in theory, whilst by a fictitious isolation they narrow the mind of the student, and naturally cause a feeling of jealousy amongst their purely medical brethren.

A good many hundred years ago, Paul showed how each

part of the body was dependent upon and bound up with the whole, and our American friends will find, if they care to examine the question, that the old Apostle's teaching is equally applicable to the question of Dental Education in America, in the present day.

The Month.

THE PRESIDENT'S CONVERSAZIONE.

An agreeable evening was spent by a large number of visitors on the evening of Mr. Tomes' Conversazione. Every provision was made for the entertainment of the guests, and various members of the Odontological Society contributed to the pleasantness of the evening, by lending valuable pictures and other objects of art. Mr. Tomes has set an example which, we trust, future presidents will not be slow to follow, and that in the future, "the President's Conversazione" may be one of the events of the dental season.

PEACOCK v. HARRISON.

The following paragraphs in reference to this case have appeared in our 'Contemporary, the *Lancet*. They explain themselves, and any comment on our part at the present time, at any rate, is unnecessary.

SUCCESSFUL LAWSUIT OF AN AMERICAN DENTIST.

A curious action has been tried in the Court of Record, Scarborough. The plaintiff, a dentist practising on the strength of a diploma from the Dental College of Pennsylvania, claimed four guineas for two operations performed at one visit, which were thus described by his counsel, Mr. Sleigh: "There were two distinct operations—one was filling with gold one of her molar teeth; the other was preparing the next tooth to it, so that it might be operated on at a future day." The defendant was a gentleman of Collingham, near Hull, on behalf of his daughter, a girl at school at Hull. A verdict was given for the plaintiff. The defendant had previously offered to pay one guinea, but emphatically declined paying four, which, we think, was rather a smart fee for stopping one tooth, and preparing another. The young lady was detained from ten to about half-past one. The learned counsel explained that the dentist was known by the proprietors of the school to charge at the rate of one

guinea per hour for his work. And he further justified his client's charge by alleging the costliness of gold leaf, and the great superiority of American dentistry over that of England, where he said there was no Dental College. Mr. Sleigh does not seem aware of the fact that the English College of Surgeons gives a licence in dental surgery. It is curious to see a successful claim for payment for surgical services on the part of a gentleman not possessed of a British qualification, and after all we have lately read, to hear the possession of an American diploma lauded as a thing to be proud of. We presume that the verdict for the full amount of the charge was based on the view of a supposed contract between the plaintiff and defendant, which it is to be regretted was not more explicit.

A DENTIST'S LAWSUIT.

To the Editor of *The Lancet*.

Sir,—I beg to request space in your next issue to correct certain inaccuracies in an annotation which appeared in your journal of May 1st, and which, no doubt inadvertently, misrepresent some points in my recent lawsuit personally very important.

"I am not an "American," but an English dentist, residing in my native county, and have practised dentistry for nine years in this town. I have had, as patients, nineteen resident medical men or their families, or both, and surely they must, from observation and personal experience, be able to form an opinion on dental operations and operators. I am practising on the strength of the right of any Englishman to practise dentistry, not "on the strength of an American diploma." When challenged by the opposing counsel to prove my status, in addition to other evidence, I produced an American diploma, for no purpose of invidious comparison, but to prove my own personal qualification, such being further confirmed by testimony from the best of my *confrères* in London. The defendant was a wealthy timber merchant, duly informed of my fee before he gave the lady superintendent of the school in Scar-borough permission to send his daughter to me. A subsequent engagement with the same patient had been arranged for, and not kept, and for this no charge was made, although I had been inconvenienced and disadvantaged thereby. A difficult and tedious operation was necessary, the result of previous neglect, and this occupied four hours and a half (not "three hours and a half"), time that I had no interest in spending further than a honest desire to do my duty faithfully. I demur to any insinuation that the fees were excessive, as I proved at the trial that they

were less than London charges by equally competent practitioners, and the case was taken into Court not for mere litigation, but to vindicate my honour and local position. I submit that it is neither "curious" nor rare to see a successful claim made by any dentist where the law unfortunately places all on the same footing.

I will not occupy your space by advertizing to uninstructed remarks by my counsel further than to say I have the highest respect for really qualified dentists, whether educated in England or America.

I am, Sir, respectfully yours,

West Park Terrace, Scarborough.

C. J. PEACOCK.

P.S. My absence from home prevented my attention being called to the annotation in time for a reply in the following impression of the *Lancet*.

ROYAL COLLEGE OF SURGEONS.

The next examination for the Diploma in Dental Surgery will commence on Tuesday, June 22nd, for the written, and be continued on Tuesday, June 29th, for the *viva voce*. We understand that nearly thirty candidates will present themselves for examination.

At a General Committee Meeting of the Wrexham Infirmary and Dispensary held on the 4th June last, Mr. T. H. Coleman was appointed Dentist to that Institution.

From the Proceedings of the Royal Society, No. 160, 1875.

"On the Development of the Teeth of Fishes (Elasmobranchi and Teleosteii)."

By CHARLES S. TOMES, M.A.

Communicated by JOHN TOMES, F.R.S. Received March 1, 1875. (*Abstract*).

IT has usually been supposed that the whole process of the development of the teeth in many fish might be taken to represent the earlier stages alone of the process as it is seen in man; this opinion is forcibly expressed by Professor Owen, who, for example, says of the sharks, "here is represented the first and transitory papillary stage of dental development in mammals; and the simple cartilaginous maxillary plate, with the open groove behind containing the germinial papillæ of the teeth, offers in the shark, a mag-

nified representation of the earliest condition of the jaws and teeth of the human embryo.'

With this opinion, already objected to by Professor Huxley, I cannot concur; still less can I concur with the statement that "in all fish the first step is the simple production of a soft vascular papilla from the free surface of the buccal membrane."

The supposed open groove behind the jaws of cartilaginous fish is in reality closed; that is to say, the epithelium of the jaw passes continuously on to the thick-fold of mucus membrane, which lies behind the jaw and protects the developing teeth; and if the groove be opened, it is by the tearing through of this epithelium.

Near to the base of the jaw the mucous membrane is cellular, and dentine organs are formed by its elevation into conical papillæ without apparent structural change; but higher up the dentine papillæ assume their characteristic forms and structures, and the residuum of the mucous membrane at their bases becomes transformed into a fibrillated tissue.

As the teeth become yet more advanced, the fibrillated tissue at their bases becomes specially arranged with reference to the base of each tooth, so as to form, in some sense, ligaments to bind it firmly in its place.

Just as the mucous membrane of the exposed surface of the jaw is covered with its epithelium, so the dentine papillæ are covered by theirs; in the latter place, however, it has undergone a special development, which entitles it to the name of an "enamel-organ." As was originally pointed out by Professor Huxley, enamel-organs are but modified epithelium.

The dentine papillæ are processes arising from a continuous sheet of mucous membrane; the enamel-organs also are continuous with one another, attaining to a special development, where they serve as caps to each dentine papilla; the arrangement of these enamel organs suggests a resemblance to the corresponding structures described by me as existing in the newt and in certain reptiles.

Enamel is present in noteworthy thickness in some Elasmobranch fish; it is absent, or almost so, in others; but enamel organs are present in all. The enamel-organs consist, on the surfaces directed towards the dentine papillæ, of a well-marked columnar epithelium (enamel cells); and

behind this layer, of a sort of finely fibrous tissue with branched cells, not, however, much resembling that known as the reticulum in mammalian enamel-organs.

In young specimens, before the continuity of the two structures is interrupted by the presence of a lip, the homological identity of the teeth and the dermal spine is well seen, the one passing into the other in an unbroken series; the teeth, however, even at an early period, attain to a much larger size than the contiguous dermal spines.

Among osseous fish my observations have been principally made upon the perch, pike, eel, haddock, cod, mackerel, and herring.

Allowing for differences of detail, which must necessarily result from the varying configuration of the jaws, &c., the process is identical in all the fish which I have examined, and is similar to that which I have observed in reptiles.

From the oral epithelium there dips down a process the terminable end of which becomes transformed into an enamel organ, the continuous subjacent tissue coincidently becoming developed into a dentine papilla.

I have seen nothing which could be called a "free papilla;" it is my conviction that free papillæ at no time exist in any animal; but it is possible that Professor Owen's statement, that "in all fishes the first step is the simple production of a soft vascular papilla from the free service of the buccal membrane," may have been based upon appearances such as are met with in the haddock, in which fish (in certain situations) the tissues surrounding and lying over the forming tooth-sac do become elevated, so that on the service there is a papilliform eminence; this, however, is quite external to the real dentine papilla, and is altogether extraneous to the tooth-sac, which does not make up one fourth of its bulk.

The distance from the surface at which the formation of the tooth-sac takes place seems to be variable, differing even in the same fish in different situations.

The enamel-organs of the eel and perch, are peculiar, consisting mainly of the layer of "enamel cells;" over the apex of the tooth these enamel are three times as large as over the sides, the transition from the cells of one to the other being abrupt and not gradual.

The teeth are surmounted by terminal caps of enamel, like those of the newts and salamanders, or those figured

by Professor Owen upon the teeth of "Ganacrodus," a new genus founded upon this solitary character; enamel is absent from the sides of the teeth, or, if present, is in so thin a layer as to be difficult to detect with certainty.

Thus one part of the enamel-organ appears to exercise an active function, the remainder to be rudimentary; and the position of the enamel cells of large size coinciding with the distribution of the enamel, is, so far as it goes, evidence in favour of the hypothesis of the formation of enamel by direct conversion of the cells.

Prof. Huxley first correctly determined the homologies of the enamel organ and the dentine papilla, referring the first to the epithelium, the latter to the derm; the follicle, however, where it exists at all, I regard as mainly a secondary development from that region of the derm which formed the base of the dentine germ.

Observations upon many mammals, reptiles, and fishes, lead me to the following general conclusions as to the development of teeth:—

(i) All tooth-germs whatever consist, in the first instance, of two parts, and two alone—the dentine papilla and the enamel-organ.

(ii) The existence of an enamel organ is wholly independent of the presence or absence of enamel upon the teeth; examples of this have been recorded by Professor Turner and by myself among mammalia, and by myself amongst reptiles and fishes.

(iii) Nothing justifies the arbitrary division into "Papillary," "Follicular," and "Eruptive" stages; nor does any open primitive dental groove or fissure exist in any creature examined.

(iv) In all cases an active ingrowth of a process of the oral epithelium, dipping inwards into solid tissue, is the first thing distinguishable; although the formation of a dentine papilla opposite to its deepest extremity goes on *pari passu* with the development of its end into an enamel-organ.

(v) A special capsule, or follicle, to the tooth-germ may or may not be present; when present, it is, in part a secondary development from the base of the dentine papilla, in part a mere condensation of surrounding tissue.

On a Carious Tooth.

By W. J. BARKAS, M.R.C.S.E., L.R.C.P. Lond.

PART II.

(Continued from page 555.)

THE CAUSES OF CARIES.

HAVING now considered the minute structure of the enamel and dentine in somewhat great detail, we are in a better position for examining the changes that these tissues undergo during the progress of caries. But before we notice the microscopical appearances of the diseased structures, it would be as well that we should pay some attention to the exciting and predisposing causes of the affection. The exciting causes necessarily come before us first, because, as I need hardly mention, it matters not how much a tooth may be predisposed to decay by its tissues being defective, caries will not break out until some exciting cause has been brought to bear upon the predisposed tissues.

The exciting causes of decay in a tooth have been the subject of much discussion among dental pathologists ever since scientific interest has been turned towards tooth structures, but even at the present day scientific dentists are not unanimous concerning them, but as we shall see later the differences of opinion are really not antagonistic but are the result of a careless use of terms. These disputants broach three theories; one holds that caries can only be produced primarily in a healthy tooth by the action of acids upon the enamel and dentine; another states, that the decay is the result of impaired vital action; the third, supported by Mr. Tomes, contends that either the chemical or the vital forces may be the primary cause or both may be in action at the same time. Which of these theories is correct? Is caries solely a chemical change? or merely the consequence of impaired vital action? or a result that may accrue from both these causes, individually or collectively? The only way to answer these queries is to look to the nature and structure of the tissues that become affected by the disease. No person will, I think, dispute the fact that in order to discover how the disease is excited we must watch its production in a perfect tooth, perfect, at least, so far that the enamel and dentine must be intact; it is not so important that they should be normal in structure because decay

would break out in the abnormal dental tissues just as in the normal, but its progress would be much more rapid. Given an intact tooth it is evident that caries can only attack the external part of it, which is the enamel covering; now we saw when describing that tissue, that, so far as our researches enabled us to judge, the enamel was completely beyond all sources of nourishment and therefore could not be affected by any impairment of the vital forces, either local or general, in fact, the conclusion that we were led to was that the enamel was a dead substance and only able to resist external forces by the peculiarity of its structure and chemical composition. To state the fact more broadly, it may be said that the peripheral half, if not the whole, of the coat of enamel is just as dead as a false tooth that has been supplied by a dentist to fill up a space in the jaw that was originally occupied by a real tooth. Prof. Owen certainly speaks strongly concerning this non-vascular condition of the enamel, for in the 'Introduction' to his 'Odon-tography' he says "This condition of the enamel, however, like the corresponding one of the Mammalian dentine, in the same degree as it distinguishes them from the true osseous tissue, and perfects them for the mechanical applications, removes them from the influence of the conservative reparative powers of the living organism. The Mammalian enamel, therefore, once formed and exposed, is least able to resist vitally the influences of the external decomposing forces but this inferiority is amply compensated by its superior mechanical endowments." This conclusion is, in my opinion, incontrovertible according to our present evidence, therefore caries certainly cannot be primarily a vital action and as we know of no other cause than chemical action that could disintegrate enamel, we must clearly consider that such is the primary exciting cause of decay in a healthy tooth situated normally in the jaw. I lay stress upon the normal situation of the tooth because under certain abnormal conditions another exciting cause is brought into action, viz., that of friction, but I shall not deal with this mechanical effect until I come to speak of the predisposing causes. Other exciting causes may be noticed when certain predisposing causes are present, as when there is a fissure in the enamel leading down to the dentine or when the teeth in the upper and lower jaws are so placed with regard to each other that the parts that come into contact

must be worn away by the friction, thus exposing the dentine. The secondary exciting causes that I am now going to speak about, can only, therefore, be brought into play when the dentine has been exposed by previous destruction of the enamel or from defective development of that tissue, but it does not follow as a natural consequence that exposure of the dentine must cause it to become carious because the dentine, being truly a vital structure, has the power under certain conditions of resisting the attacks of the external exciting causes. Among this class of causes there is undoubtedly continued chemical action, similar in every respect to that which acts upon the enamel, but now it is aided by the vital forces, that must necessarily be in operation in a tissue that is supplied with nutritive material by the blood, becoming impaired; again, it may be that the vitality itself becomes first disordered and thus, as it were, clearing the road for the chemical changes; over and above these destructive forces we have another which is said to be invariably present, viz., the parasite *Leptothrix* (?) *buccalis*. The last secondary exciting cause, however, is often brought into play upon the enamel tissue itself long before the dentine is reached especially in those cases where the decay is spread over a large surface of the enamel and is pursuing its course rapidly.

The predisposing causes come next under our consideration; they arise from faults that have been produced in the tissues of the teeth during their development, from the presence of certain diseases in the animal economy after the teeth have become exerted, and from accident. The first two causes may again be subdivided into hereditary and acquired, but generally speaking faulty development is hereditary and the predisposing causes that arise after birth are acquired. The predisposition to caries as the result of accident need not be dwelt upon to any extent, it follows almost certainly, even though the dental tissues be quite perfect in their structure and the secretions of the mouth normal, provided the physical force that has been applied to the tooth were sufficient to fracture the enamel down to the dentine, because through the crack the acids of the mouth and the *Leptothrix*, (?) if it were present, would reach the dentine and cause its vital properties to become impaired besides themselves destroying the tissue. When the cutting edge of an incisor tooth is broken off by

accident, the tooth does not necessarily decay if the fractured surface be rubbed smooth by friction with the opposing tooth, the reason of this I shall perhaps refer to later. The only other predisposing cause that can arise after birth that will affect a tooth, the enamel of which is in a continuous layer, is the excess of acid in the mouth; this cause may be due to disease or to the insertion into the mouth from without of certain medicines, foods, drinks, dentifrices &c. The diseases that may be accompanied by the presence of acid in the mouth, that is, acid in excess of the normal standard, are both local and general, such as affections of the mucous membrane of the mouth or of the salivary glands on the one hand and dyspepsia on the other. No doubt the local affections are the most frequent causes but they themselves are generally only secondary, being the result of general blood poisoning, mercurialisation, debility as a sequence of some general disease, in fact it may be said that anything that poisons the blood, alters or debilitates it, will react upon the secretory organs of the mouth and cause them to excrete altered saliva and mucus which may possibly possess acid in excess of the usual quantity. In this way we may perhaps find a probable cause for the frequent loss of teeth during pregnancy or after fever. Dyspepsia may also predispose to decay by its debilitating effect, but caries as a result of this affection perhaps more frequently arises from the acid eructations that are generally present in that complaint, or probably the acid eructations and the altered buccal secretions act conjointly. I need hardly draw attention to the effect of the insertion of acids into the mouth, for it is self-evident that if the relatively small quantity of acid in mucus will affect the enamel that acid medicines, fruits, drinks, &c., will also do so, but they are not likely to cause much harm when the enamel is perfect in structure and continuity, as their contact with the teeth is soon over. When the dentine has been exposed from any cause, the debility that I have just spoken of as being a sequence of some general disease will also act as a predisposing cause to decay in that tissue, because whenever debility is present there must necessarily be a general lowering of the vitality of the body and therefore every tissue of that body thus affected will be more readily acted upon by an exciting cause than when the economy was in a state of health. The most powerful predisposing

cause, however, is the faulty development of the dental tissues, but more especially of the enamel, because so long as there is no lesion in the enamel coat it matters not about the dentine being defective, but, as a general rule, when the enamel is perfect, the dentine is also properly developed, and *vice versa*. This imperfect development of the enamel and dentine may be the consequence of some acquired affection in the foetus itself but such a cause is very hard to discover if it be not quite impossible, it is, therefore, generally considered as a result of disease in the parent. Of these hereditary affections some are more easily transmitted than others but it is probable that only two of them have any decided influence over the growth of the teeth, viz., syphilis and scrofula; unfortunately these are the diseases that are the most readily bequeathed by parents to their offspring. In what manner syphilis and scrofula alter the structure of the teeth is not known with any degree of certainty, but we are able to recognise the changes of form fairly enough to enable us to distinguish teeth that are malformed as a consequence of hereditary syphilis from those affected by scrofula. When teeth from persons affected with hereditary syphilis are examined under the microscope and compared with those from scrofulous subjects, no marked difference of appearance can be distinguished, the one form presenting apparently all the structural peculiarities observable in the other, we shall, therefore, in pointing out the faults in the structures that predispose to caries, not make any distinction between these two hereditary predispositions. Mr. Hutchinson, in a paper read before the London Pathological Society on March 2nd, 1875, has endeavoured to shew that certain forms of malformed and defective teeth are due, not to any hereditary affection, but to the administration of mercurials during very early infancy; if he should succeed in establishing this hypothesis, which he certainly has not done as yet, then we must class this drug, so administered, as another predisposing cause affecting the structure of the teeth, but whether this alteration differs in any respect from syphilitic or scrofulous teeth I am not in a position to say; in fact my medical experience does not bear out Mr. Hutchinson's idea that such very small doses of mercury as are given to infants can have the effect he supposes, of course, I can understand repeated large doses producing a change in a developing

tooth, just as I know repeated large doses will alter the structure of bone in an adult. The first developmental defects that we must look to, are those of the enamel, and unfortunately they are only too common; the enamel may be abnormal, to use the words of Mr. Tomes, "in quantity and in quality." The quantity of enamel covering the crown of a tooth may vary very much, it may be uniformly thinner than normal over the whole surface, or only here and there as in honey-combed enamel, or again it may be quite absent in certain places as when a fissure is present in the masticating surface of a molar; in the first two examples, the deficiency would, strictly speaking, not be a predisposing cause because the enamel is still intact and caries could only commence if acid were present as an exciting cause in abnormal quantity; in the last case, however, we have a decided incentive to decay, for the dentine is exposed to the attacks of acid, parasites, and various other causes that tend to impair the vitality of that tissue, just as when the enamel was fractured by accident. The deficiency of the quality of this structure also varies greatly, and it may be observed when there is no marked difference in the quantity from the normal standard, but, as a general rule, defective structure is accompanied by defective quality. Abnormal structure may consist in the mode of the arrangement of the fibres, that is, the fibres may not be in contact with each other, there being interspaces containing a calcified matrix, or occupied by tubules or cavities; the first condition, however, is to me a doubtful predisposing cause, because I have made sections of enamel from the teeth of very old people, and in which there were not any traces of caries, yet the fibres were decidedly separated from each other by intertubular tissue as in Fig. IV., that accompanied my paper on the structure of the enamel; in fact, my researches shewed that the enamel fibres very rarely indeed possessed the hexagonal form that could alone exist were the fibres mutually co-adapted before calcification. The presence of cavities in the enamel is only a predisposing cause after caries has attacked that structure and penetrated some distance into it, for I have only found tubules and cavities as we approached near to this junction of the enamel with the dentine. Neither of these two defects, therefore, can be considered as true predisposing causes, and, in my opinion, the defective quality of enamel that is likely to be affected

by decay is one that cannot be perceived by our microscopes as yet, though there are appearances that give the idea the air of probability. This defect is the scarcity or abnormal arrangement of the calcareous particles; here we have a very ready way of accounting for the frequency of decay in those teeth the enamel of which presents a colour varying from light yellowish brown to almost black; still this alteration of the colour does not necessarily imply a tendency to decay, for I have seen it in very old permanent teeth, in temporary teeth, and in the external surfaces of the enamel of decayed teeth, very far removed from the carious cavity, without any break in the continuity. The last case shews that the conditions were present for decay to break out whenever the enamel was defective, yet it did not affect those external patches of discoloured, granular-looking enamel. When calcification is perfect, the tissue is clear and transparent, when seen in section from the uniformity of the arrangement of the calcareous particles causing the refractive powers to be equal in all parts, but an alteration of the arrangement, or a scarcity of calcareous matter, will, it is evident, at once alter the refrangibility, and might thus be the cause of the colours I have alluded to.

When caries has penetrated the enamel, or the dentine lies exposed at the bottom of a fissure or fracture, and has become affected by decay, disorganization of the dentine is more rapid when there is the faulty development of that tissue technically called "globular dentine;" this structure is, therefore, a predisposing cause to decay in the dentine. Dilatation of the tubules is often considered as a predisposing cause, and there is no doubt that it will hasten the progress of caries, but it is hardly necessary to raise it into a separate predisposition because, strictly speaking, it is one of the accompaniments of globular dentine, the one being rarely present when the latter is absent.

We have still another predisposition to take into account that may arise as a result of a faulty development of the teeth or jaws, and that is, the abnormal situation of the teeth after they have become exserted, either from some defect in the growth of the tooth germ itself, or of the jaws. In this case there may not be any defect in the structure of the dental tissues, the tooth has only to become so arranged that it always comes in contact with its opposing tooth dur-

ing mastication or any other function, thus causing friction between them, and, as a result of this constant attrition, the enamel becomes worn away at those points where the friction takes place and the dentine becomes exposed, the exposure being frequently followed by caries. The attrition that has been at work here, may almost be called a true exciting cause, just as the presence of an abnormal quantity of acid may be so called, though both are merely sequences of some predisposing cause; but the fact that enamel may be worn away by attrition until the dentine is laid bare without caries occurring, rather militates against its being so placed; such a result never follows the exposure of the dentine from the destruction of the enamel by acid so far as my experience teaches.

To sum up these various causes of decay, it may be briefly said that if caries be a true disease, and no disease can be so called unless there is impairment of vitality, it purely pertains to the dentine; and that a tooth only becomes carious as a consequence of the exposure of the dentine from any cause; the destruction of the enamel, whether normal or abnormal, which must first take place before the dentine of an intact tooth can be attacked, being merely the result of chemical or mechanical laws, which are themselves only the effect of some other disease.

Plaster Impressions.

By T. WILSON HOGUE, D.M.D., Harvard.

No doubt many practitioners have found that in making partial artificial sets, teeth adjusted to a gold plate without being tried in the mouth previous to soldering, occasionally occupy a position in relation to the natural teeth other than was expected.

This is caused by the clasps making the plate take up a slightly different position in the mouth from what it did on the plaster cast.

To prevent this occurring: after adjusting and soldering the clasps, place the plate in the mouth and take another impression of the teeth with the plate in position. Remove the plate from the mouth; should it have separated from the plaster, place it on the impression, and make a cast in

the usual manner. Fit the mineral teeth to this cast, which gives the exact relation of the plate to the natural teeth and gums.

This method, which for accuracy is superior to all others with which I am acquainted, was shown me by Dr. Kingsley, when a pupil of his in New York.

Teeth fitted to a good cast prepared in this way will invariably be correct.

Plaster of Paris must be used if a perfect impression is desired, as it is the only known material capable of taking and retaining during separation the exact forms of the teeth, and the rugae of the palate. We wish that those who do not use Plaster of Paris universally would give it a fair trial in all cases.

Mix the plaster to a thickish consistency with tepid water and a little salt, put the necessary amount on one of S. S. White's impression cups, carry it to its place in the mouth, and separate at the proper moment (which a very little practice is necessary to determine), just before it gets too hard. The broken pieces can be very easily adjusted to each other, in fact, the property it has of fracturing is one of its best qualities, for otherwise it would drag like wax and all materials of a similar character.

A slight acquaintance with Plaster of Paris will soon make one dissatisfied with all other substances now in use for taking impressions.

We would recommend this simple method instead of Mr. J. S. Turner's very ingenious one, which seems to me too complicated and unnecessary ever to come into use. It also takes up too much time in the manipulation, and the teeth are often just the parts we do wish a plaster impression of.

The old method is so easy, simple, and quick, that it seems to me Mr. Turner is making "a mountain of a mole-hill" when he speaks of difficulties to be overcome.

This allusion to Mr. Turner's method has been made because we fear the younger members of the profession may be led by adopting his method which is troublesome and tedious, to discard the use of Plaster of Paris altogether in taking impressions, and so lose one of their best friends.

Stourville, Bournemouth.

The Surgery of the Mouth.

BY FRANCIS MASON, F.R.C.S.

SENIOR ASSISTANT-SURGEON AND LECTURER ON ANATOMY AT ST. THOMAS'S HOSPITAL.

(Continued from Vol. 8, p. 564.)

DISEASES OF THE BONES OF THE FACE.—(CONTINUED.)

VIII.—CARIES AND NECROSIS (continued.)

Necrosis following Measles, Scarlet Fever, etc. (Exanthematous Necrosis.)—The various eruptive fevers, such as measles, scarlet fever, small pox, &c., are frequently followed by troublesome sequels. In one case it may be a purulent discharge from the ear (otorrhoea), in another a foul, fetid secretion from the nose (ozzena) and in a third the mucous membrane of the mouth will be principally involved (ulcerative stomatitis). In the more formidable examples there will be caries or necrosis of one or more bones of the face. Exanthematous necrosis is more frequently seen after scarlatina than after measles, not because scarlatina is more common, for the converse is the case, but because it is relatively a more important and serious disease. Caries and necrosis occasionally follow the continued fevers.

The out-patient department of any hospital affords abundant opportunities of watching the progress of caries and necrosis, resulting from the exanthematous fevers. In most instances the necrosis occurs about six or eight weeks after recovery from the fever. The patient remains in a weak, sickly condition, and then suddenly a swelling of the face is perceived. There may, however, be but little evidence of the serious mischief that is going on, for the inflammation is not necessarily very violent. Usually there is more or less periostitis; an abscess forms, which either bursts spontaneously or is opened by the surgeon. One or more sinuses are left through which the diseased bone may be detected with the probe. The necrosis may be in the form of exfoliation, small scales of bone being detached, spontaneously, or it may involve the whole thickness of one or even several bones. In the latter class of cases operative procedure of some kind is generally called for. When the alveolar border only is implicated the French surgeons speak of the condition as *nécrose sous-gingivale*, and when a larger portion of bone is attacked they apply the term *nécrose sous-cutanée* to the disease.

Necrosis of the bones of the face is seldom attended with a fatal result, and when death does occur, it is generally due to some complication, such as erysipelas or to exhaustion, the sufferer being worn out with pain and perpetual discharge. In a case under the care of Mr. Poland, of acute necrosis of the superior maxilla and malar bones, following measles, there were acute cerebral symptoms. The patient, a boy aged four, died of phlebitis of the ophthalmic vein extending to the cavernous sinus.* And in another instance, referred to by Mr. Tomes, † "pus burrowed along the side of the jaw, ascending by the ramus to the base of the skull, and gaining access to the cranial cavity by the foramen ovale, foramen rotundum, and foramen spinosum, caused the patient's death from meningitis." In a third case the patient had pyæmia, the immediate cause of death being pleuro-pneumonia. M. Demarquay, too, refers to another example in which the patient, who had necrosis of the lower jaw died from haemorrhage, the result of ulceration of the internal carotid artery.‡

As already stated, necrosis attacks the lower jaw much more frequently than it does the upper jaw, moreover, it appears to select one part in preference to another.

Referring to this point, Mr. Tomes remarks§ "That the situation in which the disease most frequently establishes itself is that occupied by the temporary molars," and Mr. Salter,|| in discussing the subject of exanthematous necrosis says, "The first evidence of necrosis has always been apparent within eight or nine weeks after recovery from the eruptive fever, usually within four or five. Its tendency is to be symmetrical. It is by no means in exact relation to the severity of the previous attack of fever, it may be the converse. It is confined to the bones that encompass the young teeth; it generally happens when the jaws are undergoing the most rapid nutritional changes—about five or six years of age—from three to eight years are the limits."

Occasionally the intermaxillary bones are the parts solely affected. Mr. Salter refers to the exfoliation of the incisive

* *Medical Times and Gazette*, April 10, 1869, p. 383.

† "Dental Surgery," edit. 2nd, p. 498.

‡ *Gazette des Hôpitaux*, 1874. No. 53.

§ Op. cit. p. 499.

|| "Dental Pathology and Surgery."

bone, and Mr. Bryant exhibited such a specimen at the Pathological Society, November 2, 1858. The patient was a child, aged three, and had had measles two months before. The specimen involved both the temporary and permanent teeth.* A somewhat similar case occurred in the practice of M. Depaul, in which the detached portion contained a tooth belonging to the second dentition. The patient was a girl, aged eight, who became affected in March, 1845, with a severe pain in the left side of the lower jaw, the pain being apparently due to the decay of the two front temporary molar teeth. The pain shortly after subsided, but was reproduced soon after the cessation of a slight eruption of scarlatina. At length an abscess opened on the face, at the angle of the lower jaw. M. Depaul found that a loose fragment of bone was present; having slightly opened the wound in the mouth, he removed a dead fragment which had formed at the angle of the jaw, the greater part of its ramus, and one-third at least of its body. The necrosed structure contained a tooth belonging to the second dentition.† Mr. Heath also alludes to a specimen in the museum of St. Mary's Hospital, in which the germs of the permanent teeth, as well as the temporary teeth already cut, were destroyed by necrosis, in a girl aged about four, after small pox.‡

Necrosis following Rheumatic Fever.—I do not remember having seen a case of this kind, but M. Roger relates an instance in which necrosis of the cartilage of the nose occurred, and which came on consecutively to rheumatism with chronic endocarditis.§

Necrosis from Exposure to Cold.—Exposure to extreme vicissitudes of weather, or prolonged exposure to a low temperature, will in some instances induce necrosis. Inflammation of the periosteum appears to be the first pathological change. This membrane subsequently becomes stripped from the bone which ultimately dies from want of proper vitality. The lower jaw is a bone in which necrosis so induced is likely to be found, but there is an interesting

* *Medical Times and Gazette*, Nov. 13, 1858, p. 510.

† *Medical Times*, vol. xiii, 1845, p. 92.

‡ "Diseases of the Jaw," edit. ii., p. 16.

§ "L'Union Medicale," No. 30.

Medical Times and Gazette, August 18, 1860, p. 168.

example reported by Mr. Cousins, in which there was caries and necrosis of the superior maxilla, brought on apparently by exposure to wet and cold only. The case was that of a gasfitter, aged 50, who was attacked, without assignable cause, with soreness of the mouth and swelling of the face over the right superior maxillary bone, and six weeks after matter came from his nostrils. After death the right superior maxilla was found extensively carious.*

Mr. Le Gros Clark also reports a case occurring in a labourer, aged 36, whose illness commenced six months previously with what he supposed to be toothache, for which he could assign no cause. He had four teeth drawn without relief; there was then a discharge from the mouth and subsequently two pieces of necrosed bone came away. Mr. Clark said there was no assignable reason for the osteitis which preceded the death of the bone, but it was most probably caused by cold.†

Necrosis of bone, commencing with ulceration of the soft parts, and gradually involving the osseous tissue.—Such cases are not very common, and Mr. Holmes Coote averred that the disease was never so transmitted. Mr. Le Gros Clark also observes that caries of bone is usually primary, rarely secondary, on ulceration of the skin surfaces. In January, 1875, I had under my observation a case to illustrate this point. The patient was a gentleman, aged 54, who had been operated upon for epithelial cancer of the lower lip four months previously. The disease returned and there was a patch of ulceration of the lower jaw of the left side, the size of a shilling. The surface was extremely friable, and broke down readily under the pressure of a probe. It looked, to quote the late Professor Syme's characteristic description, "as if it had been burned, and resembled a piece of loaf sugar that had been partially dissolved by momentary immersion in hot water."‡

Cancrum Oris or *Gangrene of the cheek* is also said to be in some cases the starting point of the disease. Mr. Stanley§ referring to this subject states that gangrene of the cheek (*cancrum oris*, *noma*) extending from the soft parts to the bones, frequently occasions necrosis of the lower jaw and but

* *Medical Times*, vol. xiv., p. 305.

† *Lancet*, August 10, 1864, p. 208.

‡ "Syme's Principles of Surgery," edit. ii., p. 171.

§ "On Diseases of the Bones," p. 69.

rarely of the upper. He has, however, seen an instance of gangrene of the cheek followed by necrosis and exfoliation of the entire superior maxillary bone. Mr. Douglas mentions a curious case of so-called *spontaneous* separation of the upper jaw. A boy had cancrum oris which took on healthy action and healed. The upper jaw, however, died and came away entire with the exception of its nasal process. It separated at the sutures from the palate bone, the vomer, the malar and the maxilla of the opposite side.*

Caries and necrosis from injuries, gunshot wounds, burns, &c. It often happens that exfoliation of bone takes place after fracture of bones, especially after fracture of the lower jaw, and in like manner after gunshot wounds. There are numerous specimens illustrating these points in the museum of St. Thomas's Hospital. A case of extensive destruction of the soft and bony tissues was under my observation in 1868. The patient was a girl, aged eight, who was severely burned on the cheek, the malar bone being exposed. The sloughing was so great that extensive exfoliation took place, and a large portion of the malar bone of the right side, and a piece of the superior maxilla separated. Persons subject to epileptic fits are known to suffer fearfully from the effects of burns. I have seen several terrible cases. A most severe example is reported as being under the care of Dr. Beveridge, in which there was exfoliation of the frontal bone for $5\frac{1}{2}$ by $4\frac{1}{2}$ inches, the whole of the nasal and part of the ethmoid bones,* and Dupuytren in his *Clinique Chirurgicale*, mentions a somewhat similar case.

Necrosis is also occasionally induced by *scurvy*, or by the *abuse of mercury*. *The difficult eruption of the wisdom teeth* is no very uncommon cause of the disease, hence it is important to make a thorough examination of the regions in which these teeth are situated.

INTRAVENOUS INJECTION OF CHLORAL FOR PRODUCING ANÆSTHESIA.—At a late meeting of the Paris Academy of Sciences, M. Oré forwarded particulars of two fresh cases of anæsthesia, produced by the intravenous injection of chloral. In one case the object proposed was to scoop out the tibia on account of caries of the bone, the other was for the operation of ovariotomy. Anæsthesia in both cases was complete, and was neither accompanied nor followed by any accident which could be attributed to

* *Medical Times*, vol. vi. p. 207.

* *Medical Times and Gazette*, April 11, 1863, p. 390.

the chloral. M. Oré took the opportunity to point out the means of neutralising the possible acidity of the chloral, a circumstance which might possibly bring on coagulation of the blood in the veins. For this purpose it is sufficient to dissolve one gramme of carbonate of soda in ten grammes of distilled water, and to add two or three drops of this solution to a solution of one gramme of chloral in four of water.—*London Medical Record.*

Odontomes.

(*TRAITÉ DES TUMEURS. PAR PAUL BROCA.*)

(Continued from page 471.)

CORONAL, PULPAL, (OR DENTINAL) ODONTOMES

I HAVE already said that these are the only coronal odontomes that can be seen in the human subject. In the herbivora they appear more rare than the cemental coronal odontomes, I, however, know of one example in the horse. It is necessary to distinguish whether the pulp participates in the hypertrophy or whether the affection more limited only occupies a certain portion of the surface of this organ. In the first case the odontome is *diffuse*, in the second case it is *partial* or *circumscribed*. We shall describe successively these two varieties very distinctly.

1st. *Diffuse pulpal odontome*.—At the moment this tumour arises, the upper part of the pulp is surrounded by a shell of enamelled dentine; but between the lower border of this shell and the neck of the dental follicle, the surface of the pulp is only limited by its cortical layer. The latter, soft and extensible does not oppose any obstacle to the hypertrophic development of the pulpal substance. The hypertrophy then first constitutes a soft vascular tumour, whose enlarged base corresponds to the neck of the follicle, and whose summit is surmounted with a portion of well formed crown which is quite normal. The lower edge of this crown is continuous with the cortical layer of the dentinal cells which surround the hypertrophied pulp. Consequently when dentification, interrupted by the work of hypertrophy continues its course, it effects it in the cortical layer constituting a shell of dentine which follows the crown and is prolonged quite round the tumour. Later this shell becoming thickened by the juxtaposition of new layers of dentine on its internal side is able to fill gradually in a manner more or less complete the cavity originally occupied by the hypertrophied pulp.

All the accidents, which we have indicated as giving occasion to odontoplastic odontomes may present themselves here. The enamel organ compressed between the surface of the tumour and the walls may be altered to the point of losing its odontoplastic property, and then after dentification no trace of enamel may be found in the tumour. But it may happen that it remains either entirely or partially and that the enamel tubes may afterwards form either on the surface of the odontome, or in the folds, more or less deep and more or less sinuous, and the surface made shapeless, irregular, and broken up, by the more or less voluminous and numerous vegetations which are more or less comparable to those which in odontoplastic odontomes constitute secondary bulbs. This vegetation may however, be entirely wanting, and the surface of the odontome then presents an almost regular contour. These data would be sufficient to comprehend the description of the two specimens of diffuse pulpal odontome which I have been allowed to examine.

One of these specimens, whose pathological condition is unfortunately quite unknown, makes part of the collection of my respected colleague, M. Oudet. It is a canine whose crown very advanced in development and covered with a brilliant layer of enamel is in continuation below with a globulous and indented tumour constituted by a dentine shell without enamel. The thickness of this shell is unequal; in some places it is not more than half a millimetre, in others at least three millimetres; finally, it shows on one of its sides a large solution of continuity which cannot have been produced by fracture, and across which the interior pulp is implanted in the wall of the follicle. We cannot know in what state this pulp was, nor whether the tumour was still in the course of dentification; the dentine might perhaps have ended by more or less completely filling the pulp cavity; perhaps also the state of this tumour may have become definitive. It is clear in any case that the crown could not have been completed and the formation of the fang impossible.

The other specimen deposited for more than 40 years in the comparative anatomy gallery of the Museum of Natural History in the 4th room on the 1st floor, No. 1324, has been mentioned by Étienne Geoffroy-Saint Hillaire, in his work quoted above, and shown by M. Emanuel Rousseau, in plate 26 of his *Anatomie comparée systèmes dentaires*. This

odontome occupies the fourth upper molar of a horse, aged two years. A portion of the crown which had been erupted had taken its position in the dental arch and had been much used in mastication; its grinding surface resembled those of the neighbouring teeth, was supported by a portion of the crown quite normal, whose depth previously considerable was reduced to 4 or 5 millimetres, which was continuous with an irregular dental mass six centimetres in depth and eight or nine centimetres broad. This mass was constituted by the union of two voluminous globes and of a dozen large growths, for the most part digitiform, of which several were at least fifteen millimetres broad and four or five centimetres long. A section taken forty years ago by M. Rousseau, through one of these principle globes, divided at the same time one of the largest digitiform growths. The latter shows no cavity; but an irregular cavity in the form of a trefoil occupies the centre of the globular mass and communicates with the exterior by a very narrow opening. This cavity encloses the unidentified pulp. The walls whose thickness varies from one to two centimetres shows upon the section white tracks imitating, according to the expression of Geoffroy-Saint Hillaire the disposition of stratified rocks.

I was not able to make a microscopical section of this tumour, but the examination with the naked eye was quite sufficient perfectly to recognise the existence of the enamel tracks in the midst of a mass of dentine. Was there cementum as well? This is doubtful to me; but it is quite certain that it was a pulpal odontome with growths, and that the cementum if it existed was only an accessory. Here again the formation of fangs was rendered impossible. But I do not hence conclude that all pulpal odontomes are necessarily deprived of fangs. They may, as has been seen, be formed exceptionally in odontoplastic odontomes, and it is probable that the same exception may occur in cases of diffuse pulpal odontomes.

2. *Partial or circumscribed pulpal odontomes.*—This affection has been described by Mr. Salter under the designation of *warty teeth*.* There is to be seen on these teeth of otherwise normal form a small warty tumour and a certain por-

* James Salter on "Warty Teeth," in his Contributions to Dental Pathology, in Guy's Hospital Reports. Vol. iv. p. 276. (Lond. 1858).

tion of the surface of the crown, the neck and fangs. This tumour is sometimes simple and formed of a single mass, sometimes constituted by the union of a great number of small vegetations similar to villosites or dentified papillæ.

In the last case each papilla is composed of a wall of dentine which is covered by a regular layer of enamel, which surrounds a small central cavity in communication with the cavity of the crown. There is likewise a cavity either simple or ramified, and communicating with that of the tooth in the centre of the partial coronal odontomes, whose surface is not covered with vegetation. Fig. 20, borrowed from Mr. Salter, gives an idea of the constitution of these tumours.* The odontome in this case appears to belong to the fang more than to the crown, or at least, to be directly in connection with the neck; but the section once made it is seen that its cavity is in connection with the cavity of the crown at that point, situated sensibly below the neck. Mr. Salter has perfectly recognised† that warty tumours of the teeth have their origin in the dental pulp. He is far, however, from suspecting their nature. According to him, they are the consequence not of a disease producing deformity of the pulp, but of a primitive malformation of this organ. "Their formation," says he, "can only be explained by supposing the existence of a pulp as warty, and as complicated as the tooth which surrounds it." And he adds that "this malformation must be considered as a defect in the first formation, *rituum prima formationis*." Besides, he remarks in support of his theory, that the disposition of warty teeth is normal in the labyrinthodon for lateral villous folds, and in the galéopithèques for the vertical papillæ.‡ I do not think, for my part, that a defect in the primordial conformation of the pulp accounts for the constitution of the tumour; all may be easily explained on the contrary by the circumscribed hypertrophy of the pulp during the third period of the development of the tooth. It may also be remarked that in a dentified tumour there are many irregular lacunæ enclosing islets of pulp, which have escaped dentification, a disposition that we have already had occasion to verify in several other odontomes.

* The above-mentioned cut may be seen in Mr. Salter's recent work on *Dental Pathology*.

† *Transactions of the Patho. Society of London*, vol. vi., p. 176.

‡ *Guy's Hospital Reports, third series*, vol. iv., p. 280.

For these different reasons, I range the tumours described by Mr. Salter among odontomes.

The affection being limited to a very restricted part of the surface of the pulp does not hinder the remainder of the crown from being almost regularly developed, and consequently no obstacle is opposed to the formation of the fang.

The tooth can then be erupted, and be used for mastication like a normal tooth. With the same variety of odontomes, I class a remarkable dental tumour an account of which was published in 1826 by the dentist Lemaire. It was a right upper canine whose eruption, retarded till the age of 16 years, was below the level of the other canines. Upon one of the sides of the crown otherwise well formed there were three vegetations that the author attributed to the fusion of so many supernumary germs originally distinct. But it is sufficient to cast a glance at the plate which accompanies the account to recognize a circumscribed coronal odontome. The tumour more voluminous than Salter's, has disturbed the formation of the fang, which is rather irregular, but which is nevertheless irregularly developed.*

London Dental Hospital, Leicester Square.

A LIST OF CASES TREATED AT THE DENTAL HOSPITAL OF LONDON DURING THE MONTH OF MAY.

THE first was that of a draper's assistant, about 38 years of age, who had applied to some medical practitioner, and from what he had stated, the patient became somewhat alarmed, and the following morning he resolved to come to this hospital, where (in his own words) he thought we should be perfectly acquainted with the diseases connected with the mouth.

On examination, in the region of the sub-lingual gland, there was a deep ulcer full of pus and secretion; it had gradually increased for a period of six weeks. After thoroughly diagnosing, Mr. S. H. Cartwright (who was one of the officers of the day), suggested that he should try the following treatment:—

R^x Potasse Chloratis 3iss.

Potassii Iodidi gr. xxiv.

Quinæ Disulph gr. xx.

Decoc. Cinchonæ, ad 3xii.

Misce flat mist, cuius capiat 3i. ter die.

* Lemaire, *Deux observations d'anatomie pathologique sur les dents, dans le Journal de Médecine de Leroux, xxxvi. p. 252.*—Paris, 1826.

R Liq. Chlorinatœ 3*l.*
 Tr. Myrrhae 3*j.*
 Acidi Carbolici $\frac{m}{j}$ *j.*
 Aquæ ad 3*j.*

Misce fiat Lotio, sœpe utend.

At his next visit, Mr. Cartwright substituted for the above mixture—

R Hydrarygi Perchloridi gr. i.
 Tr. Cinchonœ 3*j.*

Misce fiat gutœ. Capiat coch i.

Parv in cyatho vinario aquæ ter die.

He was ordered to continue his first mixture as well, but only *once a day.*

Lotio 3*j* ut supra.

The patient was decidedly better.

May 29th.—This patient again presented himself, but I think on the whole with no marked improvement. As the patient complained that he could not sleep during the two last nights, I ordered him (in the absence of Mr. Cartwright) to continue his medicines and lotion as before, for a week, and should insomnia again occur, to take a draught of the following at bed time:—

R Chloral Hyd. 3*i.*
 Aquæ Camph 3*v.*

Misce fiat mist, cuius capiat sextam partem hora somni, omni nocte si opus sit.

June 5th.—Great improvement both in the appearance of the ulcer and health of the patient; ordered him to continue his treatment. More will be said of this doubtful case.

The second was that of a French polisher, about 38 years of age, and who applied here for advice, he having a dreadfully swollen face caused by ragged teeth in the upper and lower jaws probably, which had wounded the cheek, causing ulceration and induration to a very serious extent. The patient was a poor emaciated object, and had endured seven weeks' agony. As this man applied on Mr. Cartwright's day, he prescribed the following, and strongly advocated the removal of the offending teeth:—

R Liquor Chlorinatœ 3*j.*
 Potassœ Chloratis 3*i.*
 Acidi Carbolici $\frac{m}{j}$ *i.*
 Tr. Cinchonœ 3*j.*
 Aquæ ad. 3*viii.*

Misce fiat Lotio pro ore, sœpe utend.

R Potassœ Chloratis 3*iss.*
 Acidi Hydrochlorici Diluti mx*L.*
 Tr. Cinchonœ 3*iss.*
 Aquæ ad. 3*xij.*

Misce fiat mist, cuius capiat 3*i.* ter die.

I administered the Nitrous Oxide gas, when Mr. Pearman (the dresser of the day), removed as many as time and circumstances would permit,

considering his mouth could only be opened about 3-4ths of an inch. I requested the patient to return the following Monday in order to have a further clearance, which was effected through the energetic exertions of Mr. Marriott (the dresser of the day).

The third was that of a foreigner, who presented an *awful* appearance due to abscess of some lower molar stumps, and augmented by his *poulicing externally*. It was on the point of bursting outwardly, and as Mr. Tomes thought it better to *lance* it, thereby saving possibly a large unsightly cicatrix, I did so, when nearly an *ounce* of most offensive pus escaped. I also previously removed the stumps. Mr. Tomes also suggested painting externally the surface with collodion, in order to try and confine the discharge in the mouth, by advising the patient to freely rinse it several times daily with water as hot as he could retain. The patient was particularly requested to return and report progress, but I presume he thought he had been tortured enough, and consequently would defer it, which he appears to have done, as he never turned up, still he has been seen by one of the students (Mr. Woodruff) in the street, who informs me that the swelling had almost entirely disappeared.

The fourth was a case of pivoting an upper central, for a boy 11 years old. The root was prepared and filled with amalgam, in the centre of which was a tube to receive the pin after set. When ready, the tooth was fixed, but for six months or more this lad frequently had an abscess at the apex which readily yielded to the treatment of lancing and syringing the canal out with warm water, and a few drops of kroosote added, cautioning him to discontinue wearing the tooth for a few days. As he came on a Monday usually, that being the day Mr. Charles James Fox is an officer, I brought the matter beneath his notice, when he suggested that instead of a *solid* pin being inserted into the tube, it would be advisable to have a *hollowed* pin, so that on passing this into the same tube any gas that formed could then escape, thereby preventing the recurrence of an abscess. Since adopted it has answered admirably.

The fifth was that of a girl, about 12 years old, who applied to have a tooth *stopped*; on inspecting the mouth, it appeared that she had no centrals or laterals. On questioning her whether she ever had measles, she replied that when two years old she had a severe attack. The conclusion Mr. S. H. Cartwright and Mr. Bartlett arrived at, was that exfoliation of bone with the germs of the teeth had taken place, which occasionally occurred after an exanthematous attack.

The sixth happened to be two female patients, who applied here as a last *resource*, for the extraction of some *badly broken down*, almost crownless upper molars and wisdoms. These patients had already been to a general hospital, and a dentist; at both places they had failed, and declared to them that *no one* could possibly remove them. On the strength of these assertions, and at the suggestion and wish of Mr. A. Coleman, I undertook one of the cases. Mr. A. Coleman got the patient well under the influence of Nitrous Oxide and Sulphuric Ether, when by the adaptation of forceps, DESIGNED BY HIM for these exceptionally bad cases, and made by Mr. Evrard, of 34, Berners Street, Oxford Street, I successfully removed an upper wisdom, first upper molar, and a canine stump, without the patient having the least idea of what had been done. Had I not used great muscular exertion, and had Mr. Coleman's forceps at hand, I feel fully sure that I should *not* have succeeded.

The other case came under Mr. Clover, who similarly administered

Nitrous Oxide and Sulphuric Ether, so that when well under its influence, Mr. Morris (the dresser of the day) carefully, although not easily, removed a crownless upper molar. The patient had experienced no pain during its removal.

I think when your readers are acquainted with the fact that these extraction cases readily yield to our skill and appliances, as well as the *building or packing* with *soft* or *adhesive* foil the distal walls of upper or lower wisdoms, it should act as a stimulus to parents and guardians in sending us students, who, at the expiration of two years, *can* make themselves efficient, thereby bringing credit not only to themselves, but to this school, and to the dental profession generally.

The seventh consisted of different cases of abscess of the antrum, which progressed favourably under the treatment of antiseptic, and astringent injections, diluted with warm water.

One case was, where a woman had applied to a general hospital for the extraction of the first upper molar. A fortnight after she went to the same hospital for the removal of the second *lower* molar. Five weeks after the latter, she came *here* with an abcess in the antrum, and pus exuding from the lower jaw, where the lower molar had been removed. She was a poor, emaciated, careworn, scrofulous kind of patient.

After curing the antrum mischief, the lower jaw gradually became seriously affected, swelling to an alarming extent, with an escape of a large quantity of pus. By freely syringing the part three times a week with the following, the swelling and discharge diminished:—

R Chlorozon 5*i.*
Acidi Carbolici $\frac{m}{iiii}$.
Vinum Opii 3*ii.*
Aqua Tepidae 3*vi.*
Misce fiat Injectio.

As she complained of getting no rest at night, I ordered her 15 grain doses of *hydrate of chloral* at bedtime, and to continue her tonic mixture twice daily with cod liver oil. As the mouth gradually closed, being able to open it only half an inch, it was thought advisable to remove the *loose first lower molar*, after which the swelling subsided, and she appeared to slowly re-cover, still I expect before her health generally improves, she will occasionally pay us a visit.

The eighth was an exciting case we had with a patient whilst under the influence of Nitrous Oxide and Sulphuric Ether. The patient was a robust butler about 25 years of age, who applied for the extraction of some very bad stumps and broken teeth. On this occasion I administered the Nitrous Oxide alone, with the usual satisfactory result. As time would not allow the operator to complete the removal of the *lot*, I told him to return the following Thursday. He came, when Mr A. Coleman administered the *Nitrous Oxide, with Sulphuric Ether*, on his being well under its influence, the remaining stumps and teeth were removed. On his returning to consciousness he became *violent*, shouting and resisting to such an extent as to require *five* of us to hold him, or keep him in the chair. This lasted a minute perhaps, when he recovered and stated he had been dreaming. His dream pictured to him an idea that he was behind with his work, consequently he was making all the haste possible to get it forward. I remember but one somewhat similar exciting case, and that

was at Soho Square, more than two years since. In this case he was a powerfully built fellow, and had been a warrior. To the best of my recollection *bichloride of methylene* was administered, still I would not be *positive* about that, as it might have been the Nitrous Oxide alone, however, on his recovering, it took half-a-dozen of us to control him. On questioning him, he stated he had been under a delusion, fancying he had been actively engaged in battle. Perhaps it was as well that both these cases were hospital patients, more particularly as there is generally plenty of assistance at hand. Had these two patients applied to a dental practitioner successively on a *Monday morning*, he would naturally conclude that he had commenced an exciting week.

The ninth case was that of a fishmonger about twenty-six years of age. This patient nine months since applied at a general hospital with a swollen face, undoubtedly caused by the first lower molar stumps, however, he states that a probe was passed into the abscess, and then he was strongly advised to become an in-patient, as he had a diseased jaw. Instead of abiding by this advice, he preferred calling in his *private* practitioner who could attend him at home, which possibly *might* give him a chance of doing a little *work* during some part of certain days, he being a married man with a family. Whilst being attended, he was ordered to *poultice externally*, which ultimately was lanced *outwardly* to the extent of an inch and a quarter, or perhaps more.

This man lingered on for seven months and three weeks with a discharge, not knowing what it was to pass a day without pain. Five or six weeks since he was strongly advised to come here.

He accordingly did so, when, after a lengthened account of his case, which, as you may suppose, was somewhat deplorable, complaining more particularly of the pain he was *hourly* in, by the counsel of Mr. A. Coleman, Nitrous Oxide and Sulphuric Ether was administered in order to remove the two lower molar stumps. On this being effected, Mr. Coleman advised him to freely rinse the mouth several times daily with hot Decoc. Papaver, and return that day week. From that time to the present, the patient has been coming to and fro in order to have it syringed out with antiseptic and astringent injections with opium. After attending here three weeks, he could hardly open his mouth an inch, which, on examination proved attributable to a wisdom about to be erupted on the same side. After freely lancing down to the crown, and paying due attention to constitutional treatment, the case did well, so much so, that now he is discharged, *cured*.

The last was that of a patient who complained of having suffered *excruciating* pain in the region of the left *upper second* molar. On examination with a mirror one could easily see the cause, which was the wisdom being erupted and pressing *horizontally against the neck of the second molar*. This had already caused slight absorption of the latter. As the case came under Mr. Gregson's supervision, he suggested the removal of the *dens sapientiae*. This was carried out, much to the relief and satisfaction of the patient.

Donations to the Hospital.

MESSRS. Ash & Sons, of Broad street, have presented the hospital with one of Mr. Harding's (of Shrewsbury), corundum tape cases, feeling sure that placing this ingenious little contrivance more prominently

before the profession, will be all that is required to induce them to avail themselves of its use.

Messrs. Coxeter & Son of Grafton Street East, have also presented the hospital with a plated mouth prop made by them and according to their own design.

Mr. Rutherford, of Poland Street, Oxford Street, has likewise presented the hospital with one of Dr. F. Hickman's Drop Tube and Sponge Holder Appliances, designed to accompany the dental engine when discs are used, feeling convinced that comparatively few are aware of such a neat little contrivance being in the market, judging from the limited number asked for. "The nozzle is of metal, nickel-plated, and the whole length, including the sponge, is about 4½ inches. It is simple, neat, cleanly, and indestructible, and being more rigidly put together than the ordinary drop tube, is much more easily manipulated, while the sponge attachment enables it to be used readily either to wet or clean the disk.

JAMES MERSON,

House Surgeon.

An Easy Method of Removing a Part of the Inferior Dental Nerve within the Lower Jaw.

By JOHN T. HOGDEN, M.D.

IN July, 1874, Mr. B., aged sixty-two, of robust constitution, having had uniform good health, presenting himself, complaining of intense paroxysmal attacks of neuralgia. The site of pains was the gums, teeth and bone of the right inferior maxilla.

With a strong knife I made a cut one inch long, beginning on the inner side of the base of projecting ridge of the coronoid process, and running forward on the body of the bone to about the former site of the last molar tooth.

The point of the drill of a burring engine was entered just in front of the base of the coronoid process, and directed downward, backward and a little outward; in a few seconds the drill had penetrated the canal, as was known by the absence of resistance, the sudden twinge of pain and the flow of blood.

The small drill was then replaced by a globular burr one-eighth of an inch in diameter, with this the opening was enlarged until the nerve was again touched; the burr was now carried outward and inward, and then toward the posterior dental foramen; this last gave intense pain.

Now the burr could be made to touch every part of the wall of the space without pain; the blood flowed pretty freely when the canal was first opened, and was still flowing—a little cotton pressed into the opening in the bone, the bleeding at once ceased, and we left the patient comfortable and happy.

For several days he suffered from nothing but soreness at the point of operation; two weeks later he called at my office, suffering a little with the old pain, this, however, disappeared entirely, so that on the 21st of November, when we called on him to learn the finale, he was quite well and had much improved in flesh.

The Dental Profession in France.

By MORDAUNT STEVENS, M.R.C.S.E., L.D.S., D.D.S., &c.,
Rue de Luxembourg, Paris.

Two months ago at the request of some of our readers we announced that in all probability a meeting of dentists would take place in Paris towards the end of this month to discuss the clauses of a new law to regulate the practice of dentistry in France. We made this announcement under protest, assuring the gentlemen who had come to Paris to discuss this matter with us, that, to say the least, such a notion was premature, but our confrères, more sanguine even than ourselves, argued that surely in Paris (a city in which dentists positively swarm), a certain number of practitioners could be found ready to take the initiative, and to meet to consider what had best be done for the general good of the profession. The event has proved, alas, that they were premature in their anticipations, and that we were unfortunately right. Our provincial readers cannot form an idea of the difficulty there is in bringing about this long talked of dental congress; there are so many small coteries and cliques, so much petty jealousy, rivalry, and competition, in fact, such a total absence of *esprit de corps* and true professional feeling, that the task of bringing so many strange sheep into one fold may fairly be looked upon as well nigh hopeless for the present. On the one side we have the doctors of medicine, graduates of French universities; these gentlemen, looking upon dentistry as a branch of surgery, consider, with justice, that

none but qualified medical men have the right of practising the speciality. The law is against them it is true, they submit, but they look upon all dentists practising *sine* diploma, and upon all foreigners, as interlopers, in fact as so many poachers intruding on their estate. On the other side we have dentists who have duly served their apprenticeship and are thoroughly competent in the more mechanical departments of the profession; they look on the question in quite another light. "While the doctors," say they, "were studying anatomy and surgery, we were toiling in the workroom, and acquiring a more practical knowledge of our profession, and we consider that we ought in no way to be eclipsed by our more scientific brethren." The foreign dentists claim that they have raised dentistry in France to the position it now occupies; they are, perhaps, a little proud of the special training they have received in English or American dental colleges, and appear not to be so willing to hold out the hand of good-fellowship to those who have been brought up under the old system as they ought to be. We must not forget the charlatans; they reap a golden harvest from the present state of things, and naturally will do all in their power to prevent any legislative reform.

Our worthy "confrères" do not disagree merely on what may be called public questions, private dissensions exist between them, and it is hard indeed to find two dentists who are on speaking terms with one another. We are now talking of the respectable portion of the craft, but even the charlatans are divided amongst themselves; these worthies, the very pariahs of our profession, will not even herd together, they hate their equals even more than they hate their superiors. We hope our readers will not accuse us of exaggerating the state of affairs. We have considered the question calmly and we trust dispassionately. Here in the metropolis which boasts of ruling the universe on all questions appertaining to science and art; in the town where almost every door is adorned with the brass plate of one of our craft, in a city which has been called a hive of dentists, we cannot find twenty amongst the many good men and true who practise here, ready to forget private squabbles and do something for the general good. No! Some are indifferent, others, looking upon themselves as *the only bright shining lights*, will not associate with their fellows;

others again, have some grievance against one or more of their brethren and will not join any society for fear of having to meet those who have incurred their displeasure. The story of the mote and the beam over again; they forget that some of their own bitter sayings against their neighbours may have been reported and magnified. Here let us stop; we have purposely avoided discussing the numerous letters we have received on the subject of the congress; as we do not care to enter, unless it be forced upon us, into a paper warfare. We have depicted the state of the profession in France as it is at present; it is not our fault if the picture be not attractive.

Dental Patents.

[*The Dental Advertiser*].

[Under this head we publish, as items of news, the names and claims of all patents relating to Dentistry, issued for the quarter preceding the publication of this Journal.]

156,458—November 3, 1874.—ATTACHING ARTIFICIAL TEETH TO DENTAL PLATES.—Benton J. Field, Leaks-ville, N. C.

The usual pins baked in the teeth have narrow, oblong, flattened heads, which are inserted in holes in the plates, and then clinched by giving them a half turn.

Claim.—Uniting teeth to a dental plate by means of the flat-headed pins, which are inserted in the orifices of the plate, and then turned partially 'round, substantially as set forth.

156,485—November 3, 1874.—DENTISTS' FILES.—W. F. Johnston, Brooklyn, N. Y.

A thin metal file blade is extended to form a handle, which is perforated in order to be more firmly held while in use.

Claim.—A file or similar small tool, having the portion of its blade or body, which is extended to form a handle, perforated, substantially as and for the purpose set forth.

156,796—November 10, 1874.—HAND PIECES FOR DENTAL DRILLS.—William A. Johnston, Brooklyn, assignor to Johnston Brothers, New York, N. Y.

A dental tool, for a rotating shaft, is held in a peculiar-shaped recess by means of a spring bolt, which closes the narrow openings, through which a lug must pass in order to release the tool.

Claim.—In combination with the dental tool socket, formed as described, the sliding bolt, operating to close the path by which the projection or

lug on the tool enters the shouldered recess of said socket, substantially as shown and set forth.

156,945—November 17, 1874.—AUTOMATIC DENTAL PLUGGERS.—Wm. Reynolds, New York, N. Y., assignor to Samuel S. White, Philadelphia, Pa.

Rotary motion, communicated from a shaft, is converted into reciprocating by a cam, and, through the medium of a vertically-sliding mallet, communicated to a plugging tool. The tension of spring varies the strength of the blow, and is adjusted at will. The motion of the mallet is stopped at will by the operator while the power-conveying shaft rotates.

Claim.—1. The combination, in a mechanical plugging instrument, of a mallet to act upon the plugging tool, and a cam to act upon the mallet, substantially as hereinbefore set forth.

2. The combination, in a mechanical plugging instrument, of a plugging tool, a mallet, guides for the mallet, and a cam, substantially as hereinbefore set forth.

3. The combination, in a mechanical plugging instrument, of a mallet, a spring encircling the stem of the mallet, and mechanism for adjusting the tension of the spring, substantially as hereinbefore set forth.

4. The combination, in a mechanical plugging instrument, of a reciprocating mallet, with stop mechanism, controlled by the operator, to arrest the blow of the mallet, without disconnecting the motive power, substantially as set forth.

157,140—November 24, 1874.—DENTAL AMALGAMS.—Stephen S. Southworth, Niagara Falls, N. Y.

A dental amalgam, in which mercury is incorporated with the other materials while in a molten condition, substantially as and for the purposes described and set forth in my specification.

157,464—December 8, 1874.—FLEXIBLE POWER CONVEYERS FOR DENTAL ENGINES.—Eli T. Starr, Philadelphia, Pa., assignor to Samuel S. White, same place.

A chain cable consisting of short links, capable of flexing freely and yet rigid under torsional strain, is connected to a socket-piece mounted in bearing in the hand-piece of a dental engine.

Claim.—1. A chain-cable driving-shaft for dental engines, substantially as hereinbefore set forth, the same constituting a new article of manufacture.

2. The combination of a rotating power-driven shaft, the flexible chain-cable driving shaft, the socket or chuck, and the hand-piece.

3. The combination of the hand-piece, the flexible non-rotating sheath connecting the hand-piece with the frame of the engine, and a chain-cable driving shaft rotating within said sheath.

157,647—December 8, 1874.—GAS REGULATORS FOR VULCANIZERS.—Eli T. Starr, Philadelphia, Pa., assignor to Samuel S. White, same place.

Steam from the vulcanizer drives the valve rod directly against the

elastic wall of the gas-supply pipe. The regulator is set to operate at any desired temperature of the vulcanizer by a sleeve on the valve rod.

Claim.—1. The combination of a gas-supply pipe having yielding walls and a valve rod or regulator actuated by the steam pressure of the vulcanizer, and acting directly upon the yielding wall of the gas-supply pipe automatically to vary its area, substantially as hereinbefore set forth.

2. The combination, substantially as hereinbefore set forth, of the steam supply pipe, its trap, the valve rod or regulator, the adjustable stop thereon, and the gas-supply pipe, whereby the vulcanizer will automatically be maintained at the temperature at which it has been adjusted by the operator.

157,651—December 8, 1874.—DENTAL ENGINES.—Nelson Stow, Binghampton, N. Y., assignor to Samuel S. White, Philadelphia, Pa.

The bracket loop swings freely around the tubular arm. The tubular sheet through which the belt that drives the tool moves endwise, is flexible, which enables the tool to be worked in a variety of positions without interrupting the transmission of the driving power.

Claim.—1. The combination, substantially as hereinbefore set forth, of a flexible sheath with a driving belt moving endwise through it.

2. The combination, substantially as hereinbefore set forth, of a swinging arm, a flexible sheath suspended from said arm, a handpiece connected with the sheath, and a driving belt running endwise through said sheath to actuate the tool.

3. The combination, substantially as hereinbefore set forth, of a supporting arm, a loop bracket swinging freely around said arm, and also in a plane parallel therewith, and a flexible sheath, through which the driving belt of a dental engine passes, connected with said bracket.

157,838—December 15, 1874.—DENTAL COMPOUNDS FOR FILLING TEETH.—Charles Kellnitz, New York, N. Y.

Claim.—1. The within described liquid, composed of zinc, spirits of salt, or muriatic acid, and borax, and used in combination with a suitable powder, for the purposes herein set forth.

2. The within described powder, composed of oxide of zinc and powdered glaes, and used in combination with a suitable liquid, for the purposes herein set forth.

The clinics advertised to be given at the Philadelphia Dental College, on last Saturday afternoon, February 27th, at 3 p.m., with the electro-magnetic mallet, were eminently successful, and proved most conclusively that the instrument is valuable and indispensable in the practice of dentistry. The ease and facility with which the gold was introduced into the cavities made the operations much easier to both patient and operator than by the old method. The operations performed, which were quite difficult, were skilfully executed by Drs. M. H. Webb, S. H. Guilford, H. C. Register, and W. R. Millard. The scene presented in the operating rooms was illustrative of the practical workings of the institution,

these gentlemen occupying the position of clinical instructors, in connection with those performing such operations before the students at the weekly Saturday clinics during the session of the college. Among those present were a number of prominent practitioners from our own city, New York, and other neighboring places.

Odontological Society of Great Britain.

ORDINARY MONTHLY MEETING, JUNE 7TH, 1875.

The President, J. TOMES, Esq., F.R.S., in the Chair.

MR. C. S. TOMES said he wished to call attention to some additions that had been lately made to the museum, especially to two heads of kelts or foul salmon, presented by Mr. Todd, in the lower jaw of which there was a little up-growth, which, in some species, was armed with teeth, and served as a sexual weapon for driving away the males attending on the spawning female; when the salmon became clean, the up-growth entirely disappeared. Mr. Omeara, of Simla, had also presented two skulls of a male and female boar, and the head of a deer, in the jaws of which were similar sexual weapons, and the peculiarity was that this strongly pronounced canine in the latter case, was only found when the animal attained sexual maturity; most of these teeth were only strongly developed in the adult male. Mr. Waller, of Cairo, had also made some very valuable donations, amongst which there was a very fine rostrum of a saw-fish, which had no relation to the true teeth found upon the margin of the jaws. The Society had also purchased another rostrum of a saw-fish of a different species, and differing a little in character from the others. An interesting specimen of one of the few surviving ganoid fishes, or bony pike of North America, had also been added; this species was approximated to reptiles. Mr. Waller had also presented a specimen of a tetradon, so called from its having four naked teeth uncovered by the lips in front of the mouth. Mr. Bennett had lent a unique specimen of an elephant's tusk, the peculiarity of which was that a foreign body had entered the growing pulp without materially interfering with its growth. When the tusk was fitted together there was nothing very noticeable on the outside, but when it was sawn in pieces, a spear head was found imbedded in it,

quite immovable, with dentine formed all round it. The way in which it got there might be accounted for by the fact that traps were set for elephants along the tracks by which they went to the water, and these traps consisted of a very heavily loaded spear, which was intended to fall upon the elephant's skull, and pierce its brain; but in this instance the spear, instead of piercing the elephant's brain, had stuck into the growing pulp and had there broken off. Instead of exciting an amount of inflammation, destroying the power of growth, the growth had gone on, and eventually the spear head had been carried outside the alveolus, and had become imbedded in the solid tusk. There was a little disturbance of growth about it, and the formation of a little secondary dentine, but not much.

Mr. MOON read a communication on A Method of Pivoting, of which the following is an abridged report:—

On a Method of Pivoting.—The "safety-vent practice" can, I believe, be with advantage adopted in certain cases of pivoting, in many cases of stopping of teeth, in which the pulp is dead, and in the allied cases where necrosis of pulp has resulted from rupture of its nutrient vessels in practice, gives the desirability of saving a tooth's crown by stopping, or of retaining a root for pivoting. It seems to me that, whenever there is evidence of periosteal inflammation being established, or a suspicion of the formation of alveolar abscess, it is far better to adopt this plan rather than to attempt fang-filling after any amount of dressing.

In carrying out this principle in the case of pivot teeth, the plan I adopted some half-dozen years ago, and have constantly practised and taught since, is the following:—

Having extirpated the pulp and syringed out the root canal, the bore of the latter is equalized to the depth of half an inch (or less, according to the length of the root), cylindrical bars of graduated sizes being used for this purpose. The root-barrel is then rifled with a small excavator, and a platinum tube (the same as used for lining pin teeth) is packed in with amalgam; the patency of the canal and the tube is insured by retaining a piece of pin-wire in them until the tube is fixed in place. The amalgam being set an impression is taken, the exact direction of the tube being shown by inserting into it a piece of pin-wire. A root treated thus is prevented from further decay. The crown is affixed by a split gold pin, which may be narrowed in one direction if much vent is required. In applying this principle to teeth that have to be stopped, rhizodontrypy is performed. A small vent-hole is drilled into the pulp-chamber at a point just below the free edge of the gum; into this hole a pin-wire is passed. The pulp-chamber, with its extensions into the roots, is covered over by a pad of gold-foil, vulcanite, or some other cap. The crown is then filled and the wire withdrawn. When there is an amalgam stopping at the neck of the tooth, a canal may be drilled through it; or, if a cavity has to be filled in this situation, one end of a wire can be placed in the pulp-chamber, a stopping introduced around it, and the wire afterwards withdrawn.

Mr. FOX mentioned a recent case of pivoting by a student at the Dental Hospital. After the operation there was a considerable amount of irritation, which lasted some weeks, and all attempts to subdue it failed. He suggested the method referred to by Mr. MOON, and he believed it had proved a success. The House-Surgeon, he observed, was present and he could confirm this statement.

Mr. MERSON confirmed Mr. FOX's statement.

Mr. MOON said there was an objection to having a hollow fitted within the pin into the root, because the internal tube was apt to get blocked by food. By having a split pin, the diameter of which could be lessened in one direction, sufficient vent was allowed to prevent any mischief from periostal inflammation or food collected in the root.

The PRESIDENT said that he had a box full of small thin tubes, each consisting of a square piece of thin gold soldered at one end with a little gold plug fitted into the other, which he had used in his own practice, and which he would have brought with him had he known that Mr. MOON was to read a paper on the subject. These tubes were supposed to be inserted into large molar teeth where the pulp had been destroyed, and packed in, leaving the small pin to be withdrawn in case the teeth should at any time become uncomfortable. The success of the operation had not, however, been sufficiently encouraging for it to be continued. He would exhibit the set of prepared tubes at some future meeting.

Mr. COLEMAN made a communication on the subject of Supernumerary Teeth in the temporary series.

After some discussion on this subject,

Mr. C. J. FOX called attention to an instrument invented by Mr. OWEN, of Islington, the speciality of which was that it folds gold in a more uniform manner than any other appliance in common use.

Mr. MAKINS read a paper on the Manufacture of Palladium (a full report of this paper will appear in our next issue).

Mr. UNDERWOOD said he should like to know if Mr. MAKINS could throw any light upon the fact that some of the recent preparations of palladium had been extremely defective. He thought that this might arise from its being in too fine a state of powder. The palladium was got rid of in the process of expelling the mercury. After taking the ordinary amount of palladium necessary to make a fair stopping for a cavity and applying the usual amount of mercury to it

there was no stopping left. The last packet he had from Messrs. Johnson & Matthey was free from this defect, and he was enabled to make better stoppings, but at a larger expense for palladium itself.

Mr. MAKINS said that some specimens of palladium did not mix very readily with mercury, but he had no doubt when these defects were pointed out to Messrs. Johnson & Matthey they would overcome the difficulty and provide the proper article. He omitted to state that the sponges were produced by a solution of the metal itself forming a sulphate of palladium, which, he thought, was precipitated by sulphate of iron. Occluded hydrogen was frequently obtained when this was quickly done and with heat. It was apt, however, to produce an explosive action, but this could be avoided by careful manipulation. Mr. Geo. Matthey informed him that he had many specimens which would explode between the finger and thumb. It was entirely a question of careful manipulation, and the quantity of mercury used.

Mr. C. S. TOMES said he had lately had some palladium which he was sure came from Messrs. Johnson & Matthey, and which had the appearance of being perfectly pure, but either from some molecular condition, or from some other cause, it did not set with great rapidity. He had found that practically the palladium which did not set at the time made very imperfect fillings, although he had exercised the greatest care in putting them in.

Mr. HUTCHINSON said, that in using pure mercury, he had found that the palladium did not amalgamate at all readily, but when he used what was technically called double distilled mercury with precisely the same palladium, it mixed with perfect readiness. He had, unfortunately, had more opportunity than Mr. Makins of seeing the explosions referred to, and he had always observed that after the palladium was mixed in the palm of the hand or in an agate mortar, and laid on a piece of cloth or silk or leather, an explosion took place instantly, whereas if the same palladium mixed with the same amount of mercury was kept in the hand until it was put in the tooth, no explosion occurred. The explosion was attributed, by Messrs. Johnson and Matthey, to an excess of hydrogen in the palladium, and they suggested that he should heat it before using it, in order to drive off the hydrogen. He did so, and no explosion occurred.

Mr. MAKINS said that Mr. Hutchinson's experience with regard to leather and cloth was new to him. He thought, however, that he was correct in his ideas as to the question of pure mercury.

The PRESIDENT said he should like to know what Mr. Makins meant by "very careful manipulation," because he had been at one time induced to discontinue using palladium on account of the difficulty in mixing it. The late Mr. Rogers adopted the method of getting a wedgwood mortar, and rubbing the amalgam thoroughly into the pores, never cleaning it off absolutely, but simply wiping it, so that it left a sort of coating on of the old amalgam. By that process he was enabled to mix the mercury and the palladium, but it was often a troublesome process.

Mr. MAKINS said his exposition of the careful mixing was that the matter should be kept in constant motion, bringing the particles of palladium in contact with fresh surfaces of mercury, until a pasty mass was obtained. It should not be condensed too quickly, and there was no occasion to bring it into a pellet or a ball, as they frequently have a tendency to explode.

Mr. COLEMAN was of opinion that the matter might be greatly simplified by beginning with mercury and adding palladium, diluting, as it were, the mercury as the process went on, until a sufficient amount of it was added to give the requisite consistency. This was much more economical than squeezing out a certain quantity of mercury.

Mr. MAKINS said that that was pretty much the plan he adopted.

Mr. COLEMAN said he had tried it once or twice in a mortar, but he found it easier to do it in the hand; and it appeared to him quite as effective. He was not predisposed to ptyalism, but he had heard of several cases in which members thought they had been salivated by adopting that plan.

Mr. MAGOR thought that a great mistake was frequently made in mixing too much mercury with the metal. The chief object should be to combine the fillings and the larger these were the better. The amalgam should be in a very stiff and crumbly paste. If it was pressed hard the mercury would unite the fillings and there would be no alteration afterwards.

After some further discussion

Mr. FLETCHER made a further communication on amalgams.

Mr. C. S. TOMES said that Mr. Ewbank and himself had tried the amalgam in every conceivable condition of dryness but the result was a complete failure. In all the cases teeth had been selected but they did not make contour fillings in the sense suggested by Mr. Fletcher. They selected bad cavities with which they failed, afterwards taking simpler ones and failing again. By using palladium uniform success was the result.

Mr. TURNER said that a short time ago he had been an unwilling experimenter with Mr. Fletcher's material. He had had occasion to remove half of a plug which he had inserted, and he entirely cleared out the cavity so that he could get readily at the pulp cavity of the tooth, which was perfectly dry, and the cavity was just in the state he should like to see it after withdrawing the plug for an experiment. The other half of the plug remained *in situ*, and refused to move, and if he had wished to remove it, he should have had to cut it away piece by piece as he had cut the first half. He thought that said a great deal for the stopping. When he used the material he tried to follow the conditions laid down by Mr. Fletcher. He kept the cavity as dry as it could be made, by means of a rubber dam, which kept the stopping dry for some moments after it was inserted.

This concluded the business, and the meeting adjourned.

Contents of our "Exchanges."

The Missouri Dental Journal.

Some late observations in Histology of the Dental Tissues.—Transactions of the New York Odontological Society.—Facts in Physiology.—American Academy of Dental Surgery.—Errors.—Gelseminum in Neuralgia.—Iowa State Dental Society.—Amalgams.—Dental Colleges—Second Replantation of a Luxated Tooth.—Missouri State Dental Association.—Chicago Dental Society.—Barker's Porous Finishers.—Corrections.—Growth of Man.—To obtain Light without the use of Matches.—Horlick's Food.—Ante-Natal Development of Nine Teeth.—Seventh Annual Session of the Southern Dental Association.—History of Dental Litigation.

The Dental Register, May, 1875.

COMMUNICATIONS.—Treatment of Exposed Pulps and Criticism of Dis-

cussions before the Ohio State Dental Society.—Alveolar Abscess: Treatment with Carvacrol.—Malleting.—Dental Education.

PROCEEDINGS OF SOCIETIES.—Discussions before the Mississippi Valley Dental Society.—Kentucky State Dental Society.

CORRESPONDENCE.—C. W. Spalding.

EDITORIAL.—Treatment of Exposed Tooth Pulp.—Eastern Indiana Dental Association.—Illinois State Dental Society.

Le Progrès Dentaire, May, 1875.

Avantages d'un tarif uniforme d'honoraires, par M. Stevens.—Le congrès des dentistes, par M. Stevens.—Sur la production d'obturations imperméables, par M. Stevens.—Déclacération ou flexion de la couronne d'une incisive centrale supérieure du côté gauche, par le Dr. McQuillen.—Du carvacrol, par le Dr. H. L. Sage.—Deux observations d'anesthésie produits pendant le sommeil.—Sur la demi-anesthésie, par le professeur Pajot.—Distribution des diplômes aux élèves du collège dentaire de Philadelphie.—Remarques sur la production du sommeil pendant les opérations chirurgicales, par M. Clover.—Corps étranger dans l'œsophage.—Bibliographie : Analyse de trois brochures du Dr. Magitot.—Nécrologie : Mort de M. Cuvelier, de M. Edwin Sercombe.—Réponses aux correspondants.—Livres et journaux reçus.

The Pennsylvania Journal of Dental Science, May, 1875.

ORIGINAL COMMUNICATIONS.—Is Dentistry a Specialty of Medicine? Dr. J. Murray.—Professional Conscientiousness. Dr. E. P. Kremer.

DENTAL SOCIETIES.—American Dental Convention.—Odontographic Society.

NOTICES.—Pennsylvania State Dental Society.—Illinois State Dental Society.

EDITORIAL.—Our Present Number.

Johnston's Dental Miscellany, April, 1875.

Prosthetic Treatment of a case of Hereditary Syphilis. By Norman W. Kingsley.—The Pathology of Tobacco. By Dr. W. B. Mead.—An Essay Upon Exostosis. By C. T. Stockwell.—Address to an Atom.—Mucous Engorgement of the Maxillary Sinus. By W. C. Starbuck, D.D.S.—On the Precautions Necessary to be Observed in the Use of Amalgam. By Thomas Burgh, D.D.S.—Chloroform Condemned. By J. Hardman. D.D.S.—Smooth versus Seriated points; Gold. By W. Irving Thayer. D.D.S.—New Application for the Spectroscope.—Utilization of Pine Leaves.

NOTES.—New Base for Teeth.—Shortening Teeth.—Emission of Carbonic Acid by Leaves.—Something New about Sand.—A Glycerine Thermometer.—The Carrier Pigeon.—Use of the Actual Cautery.—American Sulphur.

The Dental Cosmos, April, 1875.

ORIGINAL COMMUNICATIONS.—Causes of Irregularity in the Development of the Teeth. By N. W. KINGSLEY, D.D.S.—Dental Pathology and Therapeutics. By J. FOSTER, FLAGG, D.D.S.—A New operation for the Radical Cure of Epulis. By JOHN C. K. CROOKS, M.D., D.D.S.

PROCEEDINGS OF DENTAL SOCIETIES.—First Judicial District Dental

Society.—Georgia State Dental Society.—Third District Dental Society. Resolutions Relating to the Death of G. G. Bonner.—Baltimore College of Dental Surgery.—Pennsylvania College of Dental Surgery.—Philadelphia Dental College.—New York College of Dentistry.—Boston Dental College.—Dental Department of Harvard University.—Maryland Dental College.

EDITORIAL.—Correction.

PERISCOPE.—Have a Specialty.—The Leverage of the Lower Human Jaw.—Hemorrhagic Diathesis.—Phosphorus-Necrosis of Upper Maxilla.—Hypertrophy of Mucous Membrane of Mouth.—Osteoma of the Superior Maxilla.—Rachitic Cat.—HINTS AND QUERIES.

Correspondenz-Blatt für Zahnärzte, April, 1875.

INHALT.—Ueber den Farbestoff des in der zahnärztlichen Praxis angewendeten rosa und rothen Kautschuk.—Fälle von Irregularität.—Ozaena.—Carvacrol.—Die Salicylsäure und ihre Verwendung in der Technik und Medicin.—Arsenige Säure.—Taubheit geheilt durch Ausziehen von Zähnen.—Ein Mittel gegen Zahnschmerzen.—Tropfen gegen Zahnschmerzen.—Vermischtes.

New Inventions.

DR. HOGUE'S AMALGAM INSTRUMENT.

We have received from Messrs. Ash and Sons an ingenious little contrivance for preparing amalgams for insertion in the mouth. We have used it with great satisfaction, and, for those who object to touching the stopping, it will prove a valuable little contrivance. The accompanying directions for using Mr. T. Wilson Hogue's Amalgam Instrument will best explain its construction. Add exactly the proper quantity of mercury to the filings, and so avoid the necessity of squeezing out any excess. Mix the amalgam thoroughly in a mortar, with the spatula place in the glass funnel the quantity necessary to form a disc of the required size, and with the packer press the amalgam down to the bottom of the tube, turn the circular stands, and displace the disc by thrusting the piston a little further in. Repeat the operation till the material is all used. Should very small pieces be required, cut the disc or discs into halves and quarters with the spatula. The amalgam need never be touched by the fingers at all.

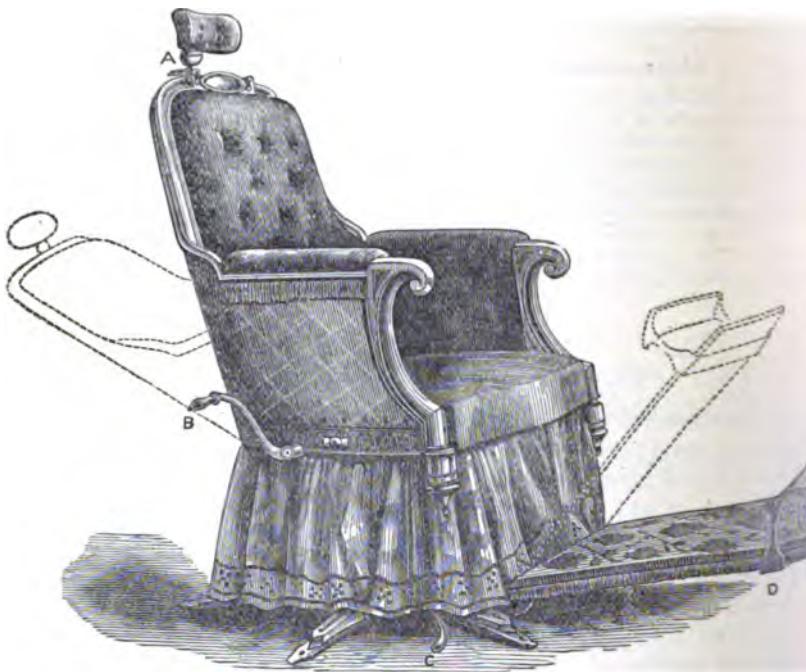
RUTTERFORD'S NEW DENTAL CHAIR.

We have been invited by Mr. Rutherford, to inspect his New Dental Chair, a view of which is given in the annexed wood-cut.

It may be briefly described as follows:—

The head-rest works on a ball and socket (A), and backwards and forwards on a sliding bar, and is raised and lowered by a slide which passes out of sight into the body of the back of the chair, and held in any desired position by a screw. The head of the patient can be brought close to the operator.

The seat is raised or lowered either with both arms, or with one, or independently by means of the crank (B). The machinery used to effect



this is a powerful and efficient arrangement, the patient being no obstacle to the rapid shifting of the position required.

C is a foot-lever, by means of which the whole chain may be placed at any angle, and moved backwards and forwards and laterally, and is controlled instantly by the foot of the operator.

The foot-rest can be moved by means of a strong ratchet to an elevated position, and has a travelling bar (D), and, although long, cannot be tilted by an ordinary patient standing at its extreme end.

It will thus be seen that this Chair possesses in a very great measure the merits of the more elaborate and costly chairs that have been recently introduced, whilst it has the obvious advantage of being, so far as cabinet and upholstery work is concerned, infinitely superior to the Chairs that we have been in the habit of seeing, as imported from America.

WE have received for examination from Messrs. Ash and Sons, a new pattern annealing lamp. It consists of an ordinary spirit lamp, on an ebonized stand, strong metal supports running up from sides of the stand, form at once a handle and a rack, by which the annealing tray, made of platinum gauze (divided by ridges into three compartments), can be either raised or lowered, whilst by a simple adjustment of the handle instrument, can be kept warm for plastic fillings. The special advantage of this lamp over others is, that the heat required can be very perfectly regulated.

Dr. Hogue describes in the *Dental Review* for May, an instrument for moulding discs of amalgam ready for use in the mouth. Allow me to state that the instrument he describes is practically identical in all points with one used by myself for some time, and that a more simple and a thoroughly efficient form has been made and advertised for sale by me for some months past, as will be seen by reference to the advertisement sheets of back numbers of the *Review*.

THOS. FLETCHER.

A Lady Dentist.

THE following interesting account of a lady-dentist at Berlin appears in *Women and Work*. "It appears that the lady in question (whose name I unfortunately forget) was born in Schlewig, and married a dentist, who settled in Berlin. This man, after leading her for years a wretched life, died at last of intemperance, and left her without means of subsistence. Having often watched her husband at his profession, she fancied that she possessed sufficient nerve and dexterity to practise it too, and resolved to become a dentist herself. But here was the difficulty: the law forbade any one to practise dentistry without a certificate, which could be gained only by examination, and there was no examination for women. She was sadly puzzled; but, being informed (erroneously, as it proved) she should obtain a certificate by attending lectures and dissecting practise in America, after repeated applications to the professional authorities of Berlin, she was told by them that an American certificate would be accepted. She at once resolved to go to America; but, on arriving at Philadelphia, where her informant had given her to understand she could study without difficulty, on applying at the college of Dentistry in that place, she learned, to her surprise and disappointment, that no woman had ever applied before, and that no exception could be made in her favour. Her case, however, created much interest among the authorities, and was formally discussed there, and the result was, that the desired permission was granted her: one vote decided the question. She now set joyfully to work, attended all the required lectures with seventy young men, and worked with them in the laboratory. One of the professors kindly gave her private instructions, and she went through a private course of dissection. She succeeded in the examination, and began to practise in Philadelphia with such success that she was strongly recommended by her friends to remain there. She wished, however, to return to Berlin: and, accordingly, armed with her certificate, did return. She began the practice of dentistry in that city, confining her practice to women and children.

She met at first with much opposition from her fellow-practitioners; but ultimately made head against it, especially after she had been introduced to the Crown Princess, and had been appointed dentist to Her Royal Highness's children. Engagements among the highest families in Berlin now flock in upon her, and at the present moment she stands in the first rank of her profession. She is said to have great strength in her little hand, a flow of health and spirits, and works without weariness ten hours a day. In the evening, her saloon is the resort of the most intelligent and fashionable society in Berlin."—*British Medical Journal*.

LONDON DENTAL HOSPITAL.

CASES TREATED FROM MAY 1ST TO MAY 31ST, 1875.

Extractions.	Children under 14	...	...	...	391
	Adults	...	...	...	460
Under Nitrous Oxide	...	...	...	...	320
Gold Stoppings	...	...	...	...	119
White Foil ditto	...	...	...	...	38
Plastic ditto	...	...	...	...	193
Irregularities of the Teeth treated surgically and me- chanically	...	...	...	...	33
Miscellaneous Cases	...	...	...	...	221
Advice Cases	...	...	...	...	96

Total 1871

JAMES MERSON, *Dental House Surgeon*.

The following Publications have been Received:—

- The Dental Register.
- Johnston's Dental Miscellany.
- Le Progrès Dentaire.
- Le Progrès Médicale.
- The Dental Cosmos.
- The Pennsylvania Journal of Dental Science.
- The Missouri Dental Journal.
- Deutsche Vierteljahrsschrift.
- Transactions of the Odontological Society.
- Correspondenz Blatt.
- Boston Journal of Chemistry.
- The Dental Advertiser.
- The London Medical Record.
- Des Propriétés Physiologiques de Bromure de Camphre (Camphre Monobromé de Wurtz) et de ses Usages Théra-
peutiques. Par Louis Pathault, Docteur en médecine de
la Faculté de Paris.
- An Inquiry into the Causes of Irregularities in the Develop-
ment of the Teeth. New York, 1875. By Norman W.
Kingsley, M.D.S., D.D.S.
- New York Odontological Society's Transactions, 1874.

TO CORRESPONDENTS.

ALL communications intended for the Editor should be addressed to the care of Messrs. SMITH, ELDER & Co., 15, Waterloo Place, Pall Mall. All inquiries respecting Advertisements and Subscriptions should be sent to Mr. GEORGE BUTCHER, 4, Crane Court, Fleet Street, E.C.

THE MONTHLY REVIEW
OF
DENTAL SURGERY.

No. II.

JULY, 1875.

VOL. IV.

The Recent Dental Examination.

THE fact is on all accounts satisfactory, that at the last Examination for the Dental Diploma of the Royal College of Surgeons, thirty candidates presented themselves.

It proves first, that the Diploma is increasing in estimation amongst a large number of dental practitioners. It proves secondly, that although we are in a transitional condition as a profession, there is a very general desire for a higher standard of educational efficiency than that with which we have hitherto been satisfied. And thirdly, it shows that those who have not the Dental Diploma themselves are still sufficiently aware of its value at the present time, and the absolute necessity for its possession in the future, to see the advisability of enabling their sons and pupils to take a degree which they have themselves, by some accident, not been able to obtain.

Still more satisfactory is it to observe that the average efficiency of the candidates has very materially improved, so that as against 60 per cent. who were accepted in January of this year, we have 90 per cent. passing to the satisfaction of the examiners on the 22nd and 29th of last month. We are committing no breach of confidence either when we state that the examiners were most favourably impressed by the general excellence of the written papers and the *viva voce* answers of the candidates.

Still it should be borne steadily in mind that we must never rest contented until the *preliminary examination in arts* is made compulsory, for dental, as well as general medical students. By demanding a higher educational standard in the first instance, we improve (with the most absolute certainty) the entire body of future practitioners, both as to professional efficiency and social position.

If it be true, as the *British Medical Journal* asserts, that dentistry is still only "a business," then it is well for us to recognise the fact, and by our earnest work of progress now, make such a statement impossible of truthful utterance in the future.

The Month.

KING'S COLLEGE, LONDON.

The Professorship of Dental Surgery at King's College has become vacant by the resignation of Mr. Cartwright. Mr. Hamilton Cartwright will, we believe, succeed his father, and become Professor of Dental Surgery at King's College, and full Dental Surgeon at King's College Hospital.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET.

Mr. Thomas Edgelow has resigned his appointment as Dental Surgeon to the Children's Hospital. Candidates for the vacancy, who must be either Fellows or Members of the Royal College of Surgeons, must send in their application on or before the 15th instant.

LONDON DENTAL HOSPITAL.

We regret to hear that Mr. Charles S. Tomes has found it necessary to resign his appointment as Assistant Dental Surgeon to the London Dental Hospital. We should have preferred being in a position to announce that Mr. Tomes had been elected a full Dental Surgeon, not only on account of his well-recognized position as a scientific worker, but still more from the fact of his having been since his appointment, such a zealous clinical

teacher. It is much to be regretted that some steps could not have been taken by the Hospital authorities to retain the services of a member of the staff who, at the present time especially, can so ill be spared.

ROYAL COLLEGE OF SURGEONS, DENTAL EXAMINERS.

At a meeting of the Council of the Royal College of Surgeons, held on Thursday, July 1st, Mr. T. A. Rogers and Mr. Barrett were elected Examiners in Dental Surgery. The choice of the Council will, we feel sure, give general satisfaction to the dental profession.

THE DEAN OF THE LONDON SCHOOL OF DENTAL SURGERY.

We believe it is Mr. Roger's intention to resign his appointment as Dean, on account of his election to an examinership on the Dental Board. This will be a great loss to the School, and it will be no easy task to fill up the vacancy that will be created. Mr. Roger's term of office, as Dean, has been so singularly successful, that although we rejoice in the well-merited distinction conferred upon him by the Council of the Royal College of Surgeons, we regret that it must—we fear of necessity—entail the loss of his valuable services to the London School of Dental Surgery.

Royal College of Surgeons of England.

THE following gentlemen, having passed the required examinations, received the diploma in Dental Surgery at a recent meeting of the Board of Examiners:—

Frederick Canton, Great Marlborough street.
Edward J. M. Phillips, Liverpool.
James L. Robinson, Cheltenham.
Joseph I. F. Corbett, Cork.
John M. Lipscombe, Alresford.
George H. Harding, Stafford.
Jack H. Whatford, Brighton.
Walter H. Fox, Gloucester.
George B. Pearman, Chelsea.
Herbert H. Clifford-Eakell, Dublin.
Augustus Cooke, Upper Norwood.
Alfred A. Hart, Newington.
Francis Youngman, Thornton heath.
Alfred Foss, Stockton.
Theodore Abraham Bodecker, Newark.
George Arthur Williams, Cavendish place.
Charles Edward White, Belgrave road.
William G. Morris, Winchester street.
John Carteigh, Stratford place.
Thomas Gaddes, Carlisle.
Thomas E. King, York.

James Stocken, Euston square.
 Robert Hall Woodhouse, Hanover square.
 William C. S. Bennett, George street.
 Alfred Allworth, Lyndhurst road.
 James Williams, Walsall.
 Thomas Rowney, Hull.

Three other candidates were examined, but were not approved.

Royal College of Surgeons of England.

EXAMINATION FOR DIPLOMA IN DENTAL SURGERY.

June 22, 1875. 2 to 4 o'clock, p.m.

N.B.—The Candidate is required to answer at least one of the two questions both on Anatomy and Physiology, and on Pathology and Surgery.

ANATOMY AND PHYSIOLOGY.

1. Give the dissection necessary to display the Pterygoid Muscles. Describe their attachments and action; and state whence they receive their vascular and nervous supply.
2. Describe the structure, relations, and functions of the soft Palate.

PATHOLOGY AND SURGERY.

1. Describe the different methods of excising a portion of the Tonsil; and state under what circumstances this operation may be required.
2. Mention the several causes, and describe the symptoms and treatment of Abscess of the Antrum.

DENTAL ANATOMY AND PHYSIOLOGY AND DENTAL SURGERY.

June 22, 1875. 5 to 8 o'clock, p.m.

N.B.—The Candidate is required to answer at least two out of the three questions, both on Dental Anatomy and Physiology, and on Dental Surgery.

DENTAL ANATOMY AND PHYSIOLOGY.

1. State the different stages of growth in the development of a canine tooth and a molar tooth, from the commencement of the calcification of the cusp or cusps, to the completion of the fang or fangs.
2. From which of the embryonic oral structures is the enamel developed? What is the form of the enamel prisms? Describe their arrangement on the crown of a molar tooth; and explain the advantages of such an arrangement.
3. What are the soft structures connected with the permanent teeth after their complete development? Enumerate the histological elements which enter into their composition; and state how they are arranged.

DENTAL PATHOLOGY AND SURGERY.

1. Give examples of reflex disturbance in relation to irritation connected with the teeth during their eruption; and explain fully the pathology of reflex nervous action.
2. Enumerate and briefly describe the several casualties that may arise in tooth extraction.

3. Describe the different modes of treating inflamed and exposed tooth-pulp.

London School of Dental Surgery.

The following Questions were Set at the recent Examinations.

June, 1875.

DENTAL ANATOMY AND PHYSIOLOGY, HUMAN AND COMPARATIVE.

(Lecturer, C. S. Tomes, Esq.)

1. Describe briefly the structure of Dentine and Vasodentine.
2. Of what parts do Enamel Organs consist? Which of these parts are most essential, and what becomes of each part?
3. What is meant by (1) "Adaptive Modification?" Illustrate your answer by reference to the dental apparatus of Snakes. (2) "Representative Species?" Illustrate your answer by reference to the dentition of any animals which may occur to you.
4. Give examples of Teeth which are applied to purposes other than the preparation of food.
5. Define "Incisors," "Canines," "Premolars," and "Molars." Why is it impossible to frame perfectly satisfactory definitions of these several kinds of Teeth?
6. In what manner, and at what period, do the Tooth-germs of the permanent Teeth originate?
7. What are "Diphyodonts," "Gubernaculum," "Lines of Schreger," "Alveolo-dental Membrane," "Nasmyth's Membrane," "Huxley's Membrane?"

DENTAL SURGERY AND PATHOLOGY.

(Lecturer, S. H. Cartwright, Esq.)

1. Describe, and give the treatment of, various diseased conditions of the Dental Pulp. Give the indications, general and local, for preserving or destroying it when exposed, explaining the operations undertaken for either purpose, and the subsequent treatment of the Tooth.
2. Give *general* rules for the Surgical treatment of the *temporary* Teeth in anticipation of possible irregularity in the second denture, and of the *permanent* Teeth when irregularity has occurred. Illustrate your answer with typical examples.
3. How would you determine whether Convulsions occurring during Teething were dependent upon Dental irritation or upon disease of the brain? What conditions exist in the spinal and cerebral systems to render them so frequent at this period, and what is the physiological explanation of the phenomena observed?
4. What are the local and constitutional causes of Caries? Suggest plans of treatment calculated to counteract such causes as you may specify.
5. Classify the tumours known under the name of Odontomes. How is their diagnosis from other enlargements of the maxillæ to be effected, and what is their pathology and treatment?
6. A patient applies to you with an unhealthy ulcer upon the side of his tongue—To what causes may it be due? Explain how you would

diagnose its character, and give the indications for treatment in each condition you may mention. [Reference might be made to cases lately treated in the Hospital.]

7. Mention and give the symptoms, pathology, and treatment of the chief diseases attacking the mucous membrane of the mouth of the child.

8. Explain the uses and therapeutic action of Iodine, Chlorate of Potash, Carbolic Acid, Creosote, Tannin, Alcohol, and perchloride of Iron in Dental Surgery.

Write a prescription for—

- a. A Mixture to be used in alveolar haemorrhage when uncontrolled by local means.
- b. An Astringent Wash to be used in cases where the gums are spongy and tumid.

THE PRIZES WERE AWARDED AS FOLLOWS.

Dental Anatomy and Physiology.

1st Prize	...	...	...	Mr. H. B. Mason.
2nd Prize	...	...	...	Mr. J. H. Whatford.
Honourable mention	...	...	...	Mr. W. H. Fox.

Dental Surgery and Pathology.

1st Prize	...	...	...	Mr. H. B. Mason.
2nd Prize	...	...	...	Mr. W. S. Bennett.
Honourable mention	...	...	...	Mr. J. H. Whatford.

“THE BRITISH MEDICAL JOURNAL,” ON DENTISTRY.

THOSE professions, which are half trades also, such as pharmacy and dentistry, present always very puzzling problems to the legislator and the publicist. They have at least two sides and two orders, and yet the temptation of the best men is always to treat them as if they had only one. The difference between a tradesman and a professional man, in the aspect of relation to their respective clients, we suppose to be, that one renders for a fee services on which he puts a price, and the other sells for a sum a thing which has an intrinsic value and a market price mainly irrespective of the vendor. In the one case, it is the man who forms the chief element of consideration ; in the other, it is the thing. Thus it is with the druggist ; who, however, justly often claims a fancy price for what he sells, on the score of his personal skill in selection, scientific acquirements, and reliability ; and with the dentist, who on the same score, likewise, commonly claims a professional status and method of payment. Moreover, druggists keep shops, and, as a rule, dentists do not ; in fact, no high-class dentist does. But, on the other hand, there are a large number of druggists who must keep shop, and sell at a small profit and no more ; and many dentists who must, if servants and poor people are

to have artificial teeth cheaply, as they ought to have, just sell the cheapest set of mineral teeth with vulcanite plate at the lowest price at which they can be manufactured, and trust to a large business to make up small profits by quick returns, and "a large turn over." How are all these to be brought within the range of "professional ethics"? To be told that they must not advertise, must not attract by a show case, or well-made teeth marked at cheap price in a shop-window! Why should not dentists advertise as well as druggists? Teeth ought to be stopped cheaply, made well, and sold cheaply; for at present artificial teeth are too much the privilege of the wealthy, whereas they ought to be within the reach of the labourer, or the servant, or the smallest shopkeeper, if trade principles can be honestly applied to cheapen them. This is, of course, heresy to the Odontological Society; and it is natural and right that it should be, for the higher walks of dentistry enter the domain of surgery; and there are points where the ground is common, and men who have a plot in both. But, on the whole, it seems unlikely and undesirable that dentistry can ever become wholly a profession, although it certainly ought not to be wholly a trade. We presume that, under Dr. Ackland's definition, it will remain a "business."

ON THE RELIEF OF TOOTH-ACHE BY BICARBONATE OF SODA.

Dr. Dyce Duckworth records in *The Practitioner* a case of severe tooth-ache in a boy, which he attempted to relieve by rubbing the cheek with chloroform; by putting some on cotton wool inside the auditory meatus, by plugging the tooth with cotton wool saturated with chloroform, also with carbolic acid, but to no purpose. He next tried a solution of bicarbonate of soda which was quickly followed by complete relief.

The pathology of saliva is as yet, so far as I know, observes Dr. Duckworth, an uncultivated field, but I believe, if it be looked for, that this secretion will be more often found to possess an acid reaction, than is generally believed or thought, and I also think that useful therapeutic hints may be gathered by the employment, at various intervals, of litmus paper in the mouth, in many cases of dyspepsia and chronic disease.

American Dental Colleges.

BALTIMORE COLLEGE OF DENTAL SURGERY.

The thirty-fifth annual commencement of the Baltimore College of Dental Surgery was held in the Concordia Opera House, Baltimore, on Thursday evening, February 25, 1875.

The number of matriculates for the session was forty-one.

The degree of D.D.S. was conferred on 17 members of the graduating class by Prof. F. J. S. Gorgas, M.D., D.D.S.:

PENNSYLVANIA COLLEGE OF DENTAL SURGERY.

THE nineteenth annual commencement of the Pennsylvania College of Dental Surgery was held at the Academy of Music, Philadelphia, Thursday evening, February 25th, 1875, at eight o'clock P.M.

The number of matriculates for the session was seventy-two.

The degree of D.D.S. was conferred upon twenty-six members of the graduating class by Henry C. Carey, Esq.

PHILADELPHIA DENTAL COLLEGE.

THE twelfth annual commencement of the Philadelphia Dental College was held at the Academy of Music, Philadelphia, on Saturday, February 27th, 1875, at eight o'clock P.M.

The number of matriculates for the session was one hundred.

The degree of D.D.S. was conferred on forty-one members of the graduating class by Richard Newton, D.D., President of the Board of Trustees.

NEW YORK COLLEGE OF DENTISTRY.

THE ninth annual commencement of the New York College of Dentistry was held at Association Hall, on Monday evening, March 1, 1875.

The number of matriculates for the session was seventy.

The degree of D.D.S. was conferred by Dr. S. A. Main upon sixteen gentlemen.

BOSTON DENTAL COLLEGE.

THE seventh annual commencement of the Boston Dental College was held at Wesleyan Hall, Boston, on Tuesday, March 2nd, 1875, at seven o'clock P.M.

The number of matriculates for the session was twenty-four.

The degree of D.D.S. was conferred on fourteen members of the graduating class by Prof. Isaac J. Wetherbee, President.

DENTAL DEPARTMENT OF HARVARD UNIVERSITY.

At a meeting of the corporation and overseers of Harvard University, at the close of the session of 1874-5, the university degree of "Dentariae Medicinae Doctor" was conferred upon five graduates.

The class consisted of forty-two students.

MARYLAND DENTAL COLLEGE.

THE second annual commencement of the Maryland Dental College was held in Masonic Temple, Baltimore, on Wednesday evening, March 3rd, 1875.

The number of matriculates for the session was twenty-four.

The degree of D.D.S. was conferred upon four graduates by C. S. Hurlbut, D.D.S., of Springfield, Massachusetts, one of the Regents.

Out of the hundred and twenty-three graduates who received the degree of D.D.S., five were from Great Britain.

Microscopical Structure of Fossil Teeth.

FROM THE NORTHUMBERLAND TRUE COAL MEASURES.

By W. J. BARKAS, M.R.C.S.E., L.R.C.P. LONDON.

CHAPTER XVI.

[Continued from p. 503.]

FAMILY. CROSOPTERYGIDÆ. (HUXLEY.)

THIS family comprises almost all the remaining Ganoids of the Northumberland Coal Measures and was formed to include a group of fishes that possess certain characters in common but the different genera in which had hitherto been scattered about in the tables of classification, for example, *Megalichthys* and *Rhizodus* were thought to belong to the same sub-family merely because they agreed in the arrangement and structure of their teeth although they differ freely enough in other respects. Then again, *Ctenodus* was considered to pertain to a family possessing nothing in common with *Megalichthys*, but the researches of Prof. Huxley tend to shew that it possesses, in all probability, the characters by which the Crossopterygidean family is recognised. According to its founder, this family is characterized by the possession of two dorsal fins, or if there be only one, it is multifid, or very long; the pectoral and usually the ventral fins are lobate; they have not any branchiostegal rays but their place is taken by two principal, with occasionally, lateral and median, jugular plates, these plates are situated between the rami of the mandibles; the caudal extremity is diphycercal or heterocercal; the scales are cycloid or rhomboid and their external surfaces are smooth or sculptured. Though there are numerous fishes possessing these characters and which must therefore be grouped under this family, they yet differ so markedly in other respects that this family requires to be divided into a series of sub-families; thus it is not probable that *Ctenodus* having large flat crushing teeth is closely related to *Megalichthys*, the teeth of which are sharp and conical. The sub-families that contain fishes from the Northumberland Coal Measures are the *Saurodipterini*, *Glyptodipterini*, *Ctenododipterini*, and the *Coelacanthini*; there are other sub-divisions but they do not contain any of the fishes that I intend to refer to. The arrangement of this family of Ganoids appears rather complicated and in some places extremely doubtful, but there can be no doubt that it is the best that has been placed before the scientific world up to the present time. The process that Prof. Huxley pursued in founding this family and its sub-families is very fully and carefully detailed in a paper on "The Classification of the Fishes of the Devonian System" that he published in Decade X. of the Geological Survey of Great Britain. Dr. Günther in his paper on "Ceratodus" endeavours to prove that certain of the fishes called Crossopterygidean by Huxley are not so but pertain to the family Dipnoi; I shall treat more fully respecting this when I arrive at *Ctenodus*.

SUB-FAMILY. SAURODIPTERINI (HUXLEY).

The characters presented by this sub-family are that it possesses "two dorsal fins; somewhat acutely lobate paired fins, jugular plates, no branchiostegal rays, smooth scales and cranial bones, among which last are three

distinct occipital plates, while the other bones have more or less coalesced." Whether a Saurodipterine is found in the Northumberland Coal Fields is yet an unsettled question, if *Megalichthys* belongs to this sub-family as suggested by Prof. Huxley, then it is represented, as *Megalichthys* is one of the most common Ganoids buried in the Shales of that County. Unfortunately, however, we have not yet learnt with certainty the character or number of the fins of that fish, nor yet do we know much concerning the character of its tail, all the other parts of the endo and exo-skeleton are well known and they agree with the corresponding features of the sub-family as laid down by its founder; the balance of probability therefore is that *Megalichthys* is a Saurodipterine and as such I shall now refer to it.

GENUS. *MEGALICHTHYS* (AGASSIZ).

The fishes of this genus have never been found in a complete state and as I have remarked above, we are not as yet, perfectly acquainted with their fins and tail. Concerning the head, scales, and vertebrae we are almost perfect in our knowledge. This genus is one of the most formidable of Carboniferous fishes either Ganoid or Plagiostomous, the head and body being, as it were, armour-plated, and the jaws strong and powerful and armed with truly terrible teeth. Its period of existence was not very long, having existed only during a portion of the Palæozoic period; the remains of *Megalichthys* are reported to have been discovered in the Devonian formations but it was in the Carboniferous era that it attained its greatest maximum of life; at that time this fish literally swarmed, its especial habit appearing to have been in the shallow seas, estuaries, and mouths of rivers, for at the present day we find its remains principally in the shales, but it also roamed far out into the ocean as is testified by its scales being found in the Carboniferous Limestones. The number of species that have been recorded amount to seven, of these one pertains to the Devonian age and the remaining six to the Carboniferous, only three, however, are found in the Northumbrian Shales, they are *M. Hibbertii*, *M. coccolepis*, and *M. tuberculatus*. If differences in size constitute species then there are many more, but I am of opinion that that is no test for dividing fishes into species if they agree in all other respects. With regard to the classification of this fish there have been great changes of opinion, these changes having occurred as our knowledge increased; it was first arranged by Agassiz among the Sauroids but this was soon seen to be absurd if *Pygopterus* and *Acrolepis* belonged also to that family for there was not the slightest similarity between them either in respect to scales, head-bones, or teeth. Prof. Owen adopted this arrangement in his "Odontography" but he appears to have detected the inconsistency before publishing his "Palæontology," for in that work he puts forth a new synopsis altogether. In this table he placed *Megalichthys* as closely allied to Saurichthys and classed them into a family named Saurichthydæ, but this classification cannot stand because it is not probable that one member of a family will possess teeth tipped with enamel like the teeth of *Acrolepis* and the other not. Prof. Huxley has drawn up a classification that appears to arrange successfully some of the Ganoids and I think his suggestions as to how the so-called Sauroids should be classified are remarkably clever and probable. By this arrangement *Megalichthys* is completely separated from the fishes indiscriminately placed together by Agassiz as Sauroids. *Acrolepis* and *Pygopterus* we have seen, have been

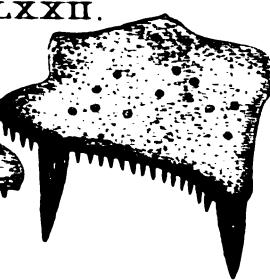


Fig. LXXI.



Megalichthys Hibberti
Mandible. Nat. Size.

Fig. LXXII.



Megalichthys Hibberti
Premaxilla. Nat. Sz.

Fig. LXXIII.



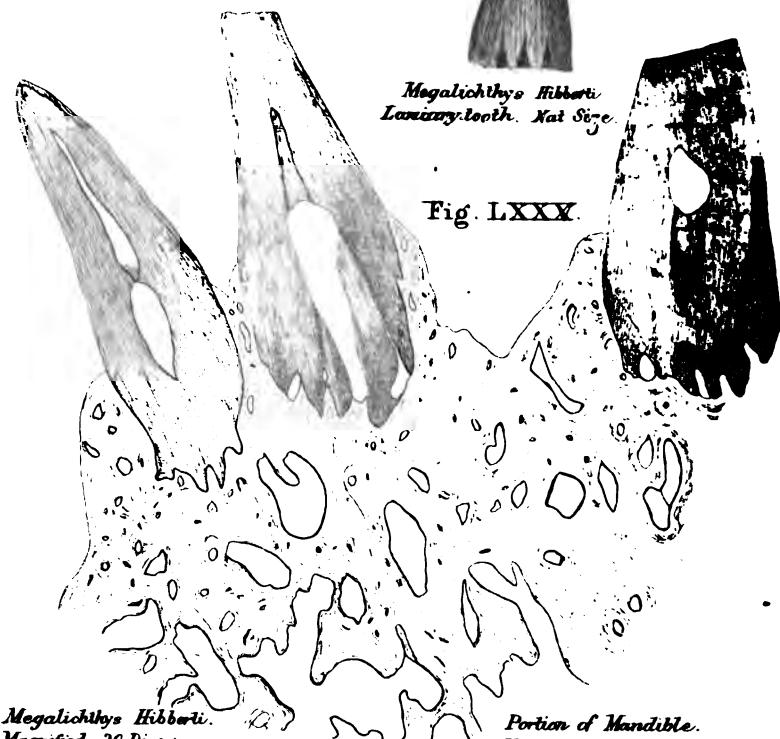
Megalichthys Hibberti
Mandible. Nat. Size.

Fig. LXXIV.



Megalichthys Hibberti
Lanceolate tooth. Nat. Size.

Fig. LXXX.



Megalichthys Hibberti.
Magnified 20 Diam.

Portion of Mandible.
Vertical Section

relegated to the Lepidosteidae, and *Megalichthys* to the Crossopterygidae and to its sub-family Saurodipterini. The characters of this fish are well marked: it varies in length from a few inches to upwards of three feet; it possesses two principal and many lateral jugular plates; a single rhomboidal agygos plate is situated between the anterior ends of the two principal jugular plates; maxilla beset with small teeth; premaxilla and mandible supplied with small teeth and every here and there large lanuary teeth; the bases of these teeth are formed of involuted dentine; the buccal surfaces of the bones that enter into the formation of the anterior part of the palate are covered with rows of minute palatal teeth which are largest anteriorly and gradually fade away as they proceed towards the throat; the centra and neural arches of the vertebral column are completely ossified; cranial bones and scales, smooth and glistening externally from that surface being covered with ganoin; scales rhomboidal; the fulcra of the fin-rays are in two rows; tail supposed to be heterocercal. The distinguishing point about the different species is that the ganoin covered surfaces of the scales and head-bones vary in their markings but in all they are smooth and shining; in *M. Hibbertii*, this surface is pitted; in *M. coccolepis* it is evenly covered by minute elevations; in *M. tuberculatus* it is irregularly papillated. In the shape of their jaws and the characters of their teeth all these species are alike and for the purposes of this paper I shall speak only of the jaws and teeth of *M. Hibbertii*.

The maxilla (Fig. lxxi.) resembles the maxilla of *Paleoniscus* somewhat in its conformation, there being a similar narrow anterior extremity with a sudden enlargement posteriorly. Its external surface is covered by a thick layer of shining enamel which is freely pitted, the punctations presenting two characters; one variety is spread over the whole surface; they are very minute, being just visible to the naked eye and from their number they give it a porous appearance; the other variety is much larger and they are situated along the superior and inferior margins, these larger depressions have a small pore at the bottom. The internal aspect is smooth and finely but irregularly striated and is without a coat of ganoin, this surface exhibits therefore the true bone substance. The alveolar border is lined by a row of small teeth of an uniform height, these teeth are situated in a groove extending along the whole length of that margin, the external ridge of the groove is much higher than the internal; the teeth spring from the external ridge about half way from its free edge and not from the bottom of the groove. The figure I have given of a maxilla is taken from the smallest specimen in my possession for convenience of illustration. I possess others that are six inches in length and I have examined specimens even longer than that, one being in the possession of Mr. Atthey. It was upon a maxilla of *Megalichthys* so imbedded as to exhibit its inner aspect that Prof. Owen founded a supposed new reptile which he named *Parabatrachus Colei* and described in the ninth volume of the Quarterly Journal of the Geological Society, London. This is not the only error Prof. Owen has published concerning this fish; in his paper on "The Dental Characters of Carboniferous Fishes" read before the Odontological Society, he describes and figures a tooth under the name of *Ganolodus Sicula* which is most decidedly a tooth of *Megalichthys*; Messrs. Hancock and Atthey pointed out this error in the third volume of the "Transactions of the Northumberland and Durham Natural History Society.

The premaxilla (Fig. lxxii.) is somewhat square in outline, the extre-

nal and internal surfaces present similar characters to those I have detailed in describing those surfaces of the maxilla; the inferior border is beset with two rows of teeth which arise from a groove that is continuous with the groove on the alveolar margin of the maxilla; the external row is formed of small conical teeth and these spring from the anterior ridge of the groove a little below its free edges, the internal row consists of very large laniary teeth, these arise from the bottom of the groove; in all the premaxillæ that have come under my notice there have only been two laniary teeth, one situated at the anterior and the other at the posterior extremities of the alveolar margin. The premaxilla that I figured belongs to a much larger fish than owned the maxilla, it is the smallest, however, that I have examined and belongs to Mr. Taylor, of Cramlington.

The mandible (Fig. lxxiii.) has a rounded anterior extremity; the posterior end rapidly terminates in a rounded point; the external surface is similar to that of the maxilla; the internal surface exhibits the bone substance but it is traversed along the middle by an irregular flattened ridge of bone, from the superior border of which there rise at intervals short bony processes from the summit of which spring the large laniary teeth, between the processes there are deep indentations, the internal surface of this ridge is covered with numerous tubercles resembling the palatal teeth, they are most numerous and largest near the superior border; just below the free edge of the alveolar arise the small teeth which are thus situated externally to the laniary teeth. Fig. lxxiii. represents the smallest mandible that I have examined and it must have pertained to even a smaller fish than the one to which the maxilla I have drawn belonged.

Covering the anterior portion of the palatal bones are numerous minute teeth, or to speak strictly, prominent conical tubercles, the most anterior being the largest, they are arranged in rows the number of rows varying in the different species, in some there are as many as half-a-dozen. These tubercles are similar to those we saw on the inner surface of the mandible and according to Dr. Young their bases are fluted. Dr. Young appears to restrict their presence to two bones situated between the maxilla and the basilar bar and the roof of the mouth, but I know that they cover the whole of the buccal surface of the vomer.

Report of the Committee on Dental Etiology.

BY J. H. MCQUILLEN, M.D., D.D.S., CHAIRMAN.

PROFESSOR OF PHYSIOLOGY IN PHILADELPHIA DENTAL COLLEGE.

IN presenting a report under this head, I would direct attention to the fact that in viewing the pathological conditions presented by the dental organs, we must not forget that they are integral parts of the organism and governed by the same laws that control diseased action in other portions of the economy; in other words, that the causes of disease in the teeth as elsewhere are divisible into *predisposing* and *exciting causes*. The *predisposing* cause being in the teeth, defective structure of the enamel or dentine, due to hereditary transmission, (as in the so called syphilitic teeth,) or the prevalence of certain constitutional diseases during the formative period, or defective nutrition in maturer years. The

exciting causes are those external influences, such as the action of acids, variations of temperature, mechanical violence, etc.; which, acting from without, develops the predisposition to disease.

As in other organs the predisposing cause of disease may remain dormant for years, or even an entire lifetime, if the exciting causes are not brought to bear with sufficient force upon them; so the same thing is true of the teeth. Classified as the teeth are with the skeleton by the anatomist, and in chemical composition more analogous to the bones than other tissues, it would be reasonable to infer that in diseased conditions of the osseous system, that the teeth would be very naturally affected under such circumstances. And this we find to be the case. In confirmation of this I propose to invite your attention briefly to these relations as manifested in the diseases known as Rachitis or Rickets, Osteoporosis and Mollitis Ossium.

Rachitis or Rickets is a disease of early infancy, characterized by a deficiency of the inorganic and organic elements of the bone; the carbonates and phosphates of lime, and the *Osteine* are alike insufficient in quantity and defective in quality. In some instances it is an intra-uterine malady but most frequently does not make itself manifest until the eighteenth or twentieth month of infancy. Both sexes are liable to it. Of the *causes* inducing this affection, some cases seem to be hereditary, several members of a family being attacked; its origin has also been attributed to strumous, syphilitic, or scorbutic conditions of the system, and residence in low, damp, ill-ventilated places; the most prolific and unquestionable cause, however, is the use of unwholesome food or imperfect alimentation, inducing an impoverished state of the blood and defective nutrition. The affection may be confined to certain bones or extend to the entire skeleton. It is attended by excessive softening of the osseous structure, so that it yields to the slightest pressure, and the bones can be bent and twisted in various directions, and often occasioning serious and irremediable deformity.

The teeth of patients who in early life have been affected with Rickets are generally found defective in structure; the enamel generally presents a roughened and pitted appearance. On making a microscopical section of such teeth, (which I have frequently done, and now have an opportunity of showing you one of the specimens under the microscope on the table,) fissures will be observed in the enamel reaching almost to the dentine, whilst the dentine in immediate proximity to the enamel presents that defect of structure known as the inter-globular spaces. So prevalent is this latter condition, that in every tooth I have examined under the microscope from a rickety patient, they have been quite numerous. In a communication entitled "Microscopical Fissures in the Masticating Surfaces of Molars and Bicuspid," published in the *Dental Cosmos*, Vol. 13, page 300, 1871, and subsequently republished in the *Monthly Microscopical Journal of London*, Vol. 6, page 182, 1871, I directed attention to the fact that the minute openings or fissures found in the grinding, proximal, buccal, palatine and lingual surfaces of molars and bicuspids, frequently lead to cavities of some size. In confirmation of this I gave a description of a microscopical preparation which my friend, Dr. R. W. Varney, of New York, had placed in my hands: of which I present the following extract from the article named:

"In the accompanying illustration, (of a longitudinal section of an inferior pre-molar, as seen under an 8-10 objective and No. 1 eye-piece,

magnifying 60 diameters,) it will be observed that a minute fissure, invisible to the naked eye in the section, extends from the bottom of the sulcus on the grinding surface of the tooth, through the enamel, almost to the dentine, and enlarging at the lower part into an oval cavity. This is entirely the result of defective formation, the enamel prisms having failed to coalesce at that point, and thus a condition is presented favorable to the retention of fluids and semi-solids, which undergoing decomposition would speedily destroy the thin septum of enamel covering the dentine. In the latter tissue, closely contiguous to the enamel, a number of black spaces (the *inter-globular spaces*) will be seen. Here again is located defective structure, and a prolific predisposing cause of decay. As evidence of the practical bearings of these investigations, it may be well to direct attention to the fact that the existence of these spaces in teeth



which have completed their growth must be regarded as an *abnormal condition*, predisposing such teeth to decay, and that when either by mechanical action, as by a fall or blow, or by the penetration of external caries, such spaces are reached, the *disease here would run riot*; hence the importance of care on the part of patients and operators to have the most minute cavities filled, for though reached only through a microscopical opening, the result would be the same, while if protected from the action of external influences, or the *exciting cause of decay*, this predisposition might remain dormant for a lifetime as is sometimes the case with other diseases."

Osteoporosis in contradistinction to Rickets is an affection of the bones produced by dilatation of the Haversian canals, lacunae and canaliculi, and sometimes attended with softening of the tissue of the bone; whilst

in Rickets there is a deficiency of the mineral constituents of the bone and of the osseine. According to Rokitansky: "This state may result from excessive development of the medulla of the bone, or of the tissues which occupy its canals and cells; while, at the same time, the actual quantity of bony substance remains unaltered. By a rarefaction of its tissue of this kind the bone becomes increased in volume—expanded. The walls of the enlarging cavities become thinner and thinner, till at length, apertures are formed in the interior of the bone, as well as in its outermost lamella, and the cavities communicate with one another. The expanded bone is soft, coarsely porous, and spongy; and more or less so in proportion to the degree of the disease; it yields to the pressure of the finger, and may be easily cut with a knife."^{*} The affection is most frequently observed in the bones of the skull and may occur at any period of life, but is most frequent in childhood and old age. Among the recognized causes of Osteoporosis are Syphilis, Scrofula and Rheumatism. I have had only one opportunity of examining a case of Osteoporosis. My friend Professor William Pepper having brought to me a phalange of the finger of a boy, age fourteen, a native of England, who died February 8th, 1868, after a painful illness. His face, arms, and limbs had become very much enlarged and exceedingly painful prior to death. The true nature of the affection was not recognized until after his decease. After making a microscopical section of the bone, I requested Professor Pepper to supply me with one of the teeth for microscopical examination, stating at the same time that I had reason to believe that the *inter-globular spaces* would be found quite abundant in the dentine. Having complied with my request by giving me a canine tooth, I found on making a section of it confirmation of the opinion I had expressed; the *inter-globular spaces* being scattered throughout the coronal dentine. Whether this would be found to prevail generally in the teeth of persons affected with this disease remains to be determined by subsequent investigations. It is not only an interesting but also an important point to determine, as it has a practical bearing upon the durability of the teeth, as some cases of Osteoporosis are curable; it being succeeded by induration of the affected structure.

Mollities ossium or *Osteo malacia* is quite a different affection from either of these named and attacks persons who have adult or advanced life. It is a rare but most destructive and dangerous disease of the bones, characterized by softening of the osseous tissue, dependant upon the gradual removal of the earthy constituents and the deposition of a reddish sero-albuminous, oily or greasy substance. According to the authority already quoted:† "The bones diminish in size and their texture is rarefied and atrophied; they become saturated with fat, and reduced to their cartilaginous element. In this condition their corpuscles are empty and when viewed by transmitted light, diaphanous; there are no canaliculi (Kalk-Kanilchen) and the lamellar structure is lost. The bone at the same time undergoes a striking change in chemical composition, the extract produced by boiling being not only different from chondrin, but also from the animal matter of bone."

The cause of this complaint seems to be involved in obscurity; in some

* Rokintansky's Pathological Anatomy, Vol. 3, Page 188.—Philadelphia, Blanchard & Lea, 1855.

† Ditto ditto Vol. 8, Page 142.—Ditto.

cases it appears to be connected with a Rheumatic tendency. It is more frequent in the female than in the male sex, and sometimes makes its appearance after child-bed. The affection may be confined to certain bones, or extended to the entire skeleton as in the case of Madam Supoit, whose bones had become so completely softened that her limbs could be placed in almost any position. The lower extremities for instance could be bent so that the toes touched the back part of the head, while her arms could be thrown into equally distorted positions. She had lost all control over them, and was unable to move any part of the body with the exception of the head and left arm. The disease frequently begins during pregnancy or within a short time after parturition. It is said to be in some cases hereditary, presenting itself in three successive generations, but not prior to puberty. Of all the affections which we have considered, this one is the most interesting to us on account of the fact that the teeth are coincidently and seriously affected; thus it is not an unusual thing to find young women whose teeth prior to marriage were remarkable for their beauty and apparent perfection of the enamel and dentine and which under the excavator and drill, when demanding attention, had been found hard and exceedingly difficult to cut with a keen instrument; after bearing one or more children these teeth undergo the most remarkable change; decay making its appearance in various directions and the tissues cutting under the instrument with facility and as if composed of gelatin; and the decay not unfrequently progresses with such rapidity that one or more teeth are lost after each pregnancy, thus confirming the old adage: "For every child a tooth is lost." Are we not justified in attributing the softening of the bones in Osteomalacia and the remarkable softening of the teeth, to the fact that during the period of pregnancy the demands of the fetus in utero for the calcareous constituents in the food taken by the mother to build up the osseous structure are so imperative and exacting that the mother is robbed of those constituents so essential to repair the interstitial changes taking place in her bones and teeth? And is it not also reasonable to infer in the cases that come under our observation where the teeth are so remarkably affected or changed during the period of pregnancy, that the osseous structure has suffered at the same time, but not in sufficient degree to attract the attention of the general practitioner? I have never made a microscopical examination of the teeth of a person affected by Mollitis Osium, but believe that it offers an interesting field for investigation.

PROLAPSUS LINGUE.—Mr. Fairlie Clarke, the Pathological Society, exhibited drawings of a case of prolapsus lingue, shown to the Society there years ago. The present condition was that of a well grown boy, perfectly formed. The tongue was still thickened and clubbed; but the boy could close his mouth, though it was generally a little open. He was now four years old; his speech was a little thick and indistinct. His parents knew all he said. His jaws and teeth could almost close. The teeth were good and straight. The result was good.—Mr. Wagstaffe asked what was the growth microscopically, and what the operation performed.—Mr. Clarke replied that the operation was amputation with the simple wire *écraseur* at the

line of the teeth; the protruding portion, about an inch and a quarter in extent, being removed. The microscopic sections were so identical with those of Mr. Arnott's in the volume of *Transactions* for 1872 that a second set were not made. The child was a fine child, in the possession of all his faculties.

Treatment of Deciduous Teeth.

BY HENRY S. CHASE.

THERE is nothing more worthy of attention, at the present time, by the dental profession than the subject of *the Preservation of the Deciduous Teeth*.

That we should go to the *source* of the trouble, and try to understand the remote causes of decay in these temporary organs, and thereby endeavor to institute measures for prevention of dental caries, hardly anyone will deny. As I have already on other occasions written lengthy papers on this subject, one of which was read at the American Dental Association in Boston, in 1866, and which I intend to reproduce in this Journal soon, I will pass this portion of the subject and proceed to make some observations on the subject at the head of this article.

And in the first place it seem necessary that I should say something in regard to its importance, for until it is conceded important by dentists themselves, it will grow into importance very slowly in the minds of fathers and mothers. It certainly is true that the public has been educated up to the present point, in dental matters, by dental practitioners themselves. And on this particular subject a great deal of preaching is still necessary. For while a large number of families among the well-to-do of our cities have their children's temporary teeth attended to, the great mass, consisting of nineteen-twentieths, regard it as of no consequence. And the result is a very great deal of dental pain endured by children, and a great loss of sleep and waste of sympathy by parents. I wish that every parent was obliged by natural law to suffer all the pain endured by children, resulting from decay of their deciduous teeth. I think it would only be just. It is the parents' duty to give by inheritance good, sound dentos to their children, and it is a further duty that they enforce such hygienic and remedial

measures as will preserve them until nature calls for their removal.

These deciduous teeth are necessary for the health of the child. Food not well masticated is imperfectly digested, resulting in many of the ailments of childhood, including not only "bowel troubles," but many diseases resulting from want of proper nutrition, such as nervous disorders, rachitis, inbecility and starvation of the dental tissues. Not only is this the case, but the ill effects of pain on the whole organism, together with the inflammation of the parts contiguous to dental disease, frequently produce the most disastrous consequences.

That the presence of healthy deciduous teeth in the jaws until the natural development of the permanent set, is necessary for the natural evolution of the jaws and teeth, I have no doubt. That deciduous teeth *may* be extracted before time, and yet a good development of these organs take place in many instances, I also believe. But on the other hand, I can see an arrest of development produced by premature extraction.

The growth of the jaws takes place in several different ways, in order to give room for the permanent teeth. *One* of its modes of growth is by a movement of the temporary crown bodily forward towards the buccal or lingual surface. Not until the roots of the deciduous teeth have been more or less resorbed can this take place; then the alveolar wall above the crown of the deciduous tooth is wholly or partially resorbed, and the permanent crown moves toward the buccal or lingual surface, pushing the gum before it also. When the tooth has attained the desired position, the alveolar wall is again formed under the gum, and thus an increase of transverse and antero-posterior diameter of the arch takes place.

The other modes by which this result has been attained need not at this time be discussed. Every dentist of many years experience and observation must have often noticed permanent teeth coming through the gum above the crowns of the temporary, showing, not the cutting edge or grinding border first, but the broad buccal or lingual face. When the temporal tooth is absent for a considerable period before the eruption of the permanent substitute, I have never seen the latter take the position described, but on the contrary, it shows its *edge* first, and then in the line representing the smaller arch.

This tendency of the permanent teeth, under the condition of premature extraction of the deciduous ones, may be taken advantage of in those cases when there is *too much* fulness of the dental arch, and especially of its anterior portion.

And now that, I think, I have given sufficient reasons for the preservation of these deciduous teeth, let us find out the best way to do it. I shall give the results of *my own experience, and others have the same privilege in this Journal*. Twenty years ago I commenced the practice of endeavoring to impress on the minds of parents the importance of this subject. Children three years old and upwards, used to be brought to have teeth extracted on account of tooth-ache. I began to save them instead of extracting. I soon found that it was a matter that must be studied. In the first place I must get the confidence of the little ones, avoiding a movement which would give it pain. I must never deceive them. I must not fatigue them. To do this I found much patience was required. I found that it was not a desirable practice to have, so far as money and comfort were concerned. Nothing but a sense of duty and sympathy for the parties urged me on. I met with more difficulties then than now, and I do not intend to fatigue my reader with the process of evolution, but tell them what my *present* practice is, being as it is, the result of my many mistakes and successes by diverse methods.

In the first place, what deciduous teeth do I not try to save, but on the contrary extract?

I extract all dead roots, whether with or without crowns. Now right here, let me repeat what I have thousands of times before said. A tooth is not necessarily dead because its *pulp* is dead. On the contrary, a tooth with a dead pulp almost always has a living pericementum, for a long time after the death of the former. I extract all teeth having pericementitis, which I think I cannot easily cure. It is bad practice to allow roots which are causing inflammation to remain contiguous to undeveloped teeth. If a child comes to me for the first time with teeth that need extracting, and also those which need plugging, I perform the latter operation first, if possible, so as to produce a less unpleasant impression than by a different procedure. When we once get the confidence of the child by having performed *painless operations*, then it will not be destroyed

by a painful one, if we do not *deceive* the child. When the latter asks me "will it hurt?" I always tell it just what I honestly believe. It cannot be too thoroughly impressed on the minds of parents, that children ought to be brought to have their teeth filled *before they have ached*.

If a child is brought to me at four years of age for consultation, and ever after that as often as I may designate, that child need never have the toothache, or the parents wakeful nights on that account. This as a rule. There are children whom I cannot manage, but they are few, if the parents will not meddle.

Painless operations must be performed. Fatigue of the child must be also avoided. Give it short sittings, say from fifteen minutes to half an hour, according to age and endurance. Even a quarter of an hour may be too long. What time is lost in brevity must be made up by frequency. I cannot insist too much on these things. Parents will urge longer sittings, because it is trouble to themselves, but be firm and look only to the success of your treatment. When these fundamental principles are well *felt* by the dentist, his practice with children will glide into natural channels, without too much particularizing on my part.

I find that operations performed on children's teeth, are not as successful as a rule, as upon those of adults. One reason is the necessarily imperfect manipulations in many cases. The very fact that pain must be avoided makes it so. On the other hand, deciduous teeth are full of vitality, of motion; the microscopical organs composing them are active; if a plug is not in harmony with its walls, resorption may take place and the pulp become irritated or exposed. It is well to remove superficial decay when possible; especially on proximate surfaces the teeth should be cut away freely, and always so as to be as self-cleansing as possible. This is still more important when one proximate surface is a sixth year molar or bicuspid; the deciduous tooth should be far removed. When plugs are placed on proximate surfaces the same separations should be maintained, for plugs and teeth will last much longer than if the natural shape of the teeth is maintained, or a narrow space left between the teeth. Some grinding surface must be sacrificed for the greater good of durability. Separations are easier performed for children with Arthur's thin chisels, than with the file or corundum wheel. Experience with each individual child will decide this.

In some cases alveolar abscess may be cured for children, not by the heroic treatment of adults, but by merely cleansing the cavity of decay and pulp cavity as thoroughly as possible, using alcohol as a disinfectant. Filling the roots must not be insisted on, and attempts in this direction carried only so far as circumstances may dictate. The roots may be half absorbed in their length when the tooth is treated, or even cut half way off near the neck by the same process. When not more than a year will probably elapse before the teeth of replacement will appear, an ulcerated tooth had better be extracted.

The pulp, when exposed, may be destroyed in the usual manner, and its extirpation postponed for twelve days, in order to avoid pain, and even longer if necessary. No attempt should be made to *diver* into the root canals for the vessels; saturate them well with alcohol and cover them up. The rubber dam must often be dispensed with, and pieces of spunk cut into large or small squares to absorb moisture must be freely used.

The pulp chamber in deciduous teeth is very large, often occupying a large portion of the crown *above the neck*, with horns running towards each cusp. Great care must be used not to wound this pulp or its horns in excavating, for they are exposed in very many small crown cavities, and especially is this the case when the resorptive process has commenced. When freshly exposed, or not having had many inflammations, efforts should be made to preserve it alive. To do this, ox. chlo. zinc must not come in contact with the pulp or with dentine. Ox. chlo. zinc is not in harmony with the delicate tissues of deciduous teeth.

Gutta-percha varnish, (chloroform and gutta-percha in thick solution) that will drop from an instrument, should always be used for an exposed pulp, it will quiet the pain and keep the air from the pulp; drying as it does, rapidly, the *plug* can be introduced immediately, either of ox. chlo. zinc or metallic paste. For a temporary filling the former may be used, as it hardens rapidly, and can be introduced with little pressure. But it is much better to *fill the cavity but once*. It will suit parent and child much better than another operation. The thorough removal of decay must not be insisted on when accompanied with pain. Its removal is desirable and should be done when it will not prevent the accomplishment of our object, but "a half loaf

is better than no bread," and therefore there may be cases when but little of the decay can be removed. Saturation of the carious bone with alcohol will render it less liable to decay, and if the margins of the cavity are cut away until sound and healthy dentos is reached, decay will proceed very slowly under a water-tight plug. The metallic paste should be the best amalgam that can be procured. I have found "Fletcher's Gold and Platinum Alloy" to be the most reliable. It neither shrinks or discolors, and hardens readily enough, and bears mastication well. I have tried this by the "glass tube test" many times, and never found leakage. Sometimes it must be used very plastic, at other times more friable; but it must be packed soon after mixing. Every cavity in which this paste is used should be varnished. This coating has less conducting power than metals, and seems to be more in harmony with deciduous dentos. The patient should return in a day or two for examination. The plugs may have been partially displaced by mastication, notwithstanding your directions that the tooth should not be used, in eating, for four hours. At this time it should also be polished, is necessary. I never had but one such plug spoiled by a patient.

Teeth and Toothache.

IN our last number, it may be remembered, we published a brief memorandum, by Dr. Duckworth on the value of bicarbonate of soda for the relief of toothache. Dr. Duckworth's recommendation has brought more than one other capable correspondent to the front, and in the current issue of the *Practitioner*, some little space is devoted to the matter. As the subject is one in which very many chemists and druggists, no less than medical men, are greatly interested, no apology will be necessary for treating it in our pages.

Dr. W. B. Holderness, of Huntingdon, writes:—
"I see Dr. Duckworth speaks very highly of the use of bicarbonate of soda for toothache. I have for a long time very frequently been successful in giving patients relief by stopping the hollow tooth with a paste made in the palm of the hand, by dropping on to a good pinch of the bicarbonate of soda as much tincture of opium or of the vinum opii as the soda will take up, working the whole into a paste, and putting into the tooth." This hint may possibly be useful in some cases, but Mr. J. Smith Turner, M.R.C.S., and dental surgeon to the Middlesex Hospital offers a far more complete and useful contribution to the discussion. He holds, and, as we think, not unreasonably, that while the employment of bicarbonate of soda will not unfrequently be attended with great benefit, to suppose that its application will invariably produce the desired result, may lead

to unreasonable disappointment. The term toothache is applied indiscriminately to all pain situated in or around the teeth, but the disturbance may arise from different causes. The pain in Dr. Duckworth's case evidently arose from the covering of the tooth-pulp being insufficient to protect it from the action of the saliva or from the exposure of the dentine to the secretions of the mouth through the loss of its natural covering, the enamel. Hence the subsidence of pain on the use of the antacid. The same application is of great use where the enamel structure is feeble and where numerous defective spots are present, as is frequently seen in young phthisical patients; also in children where there is a general defective condition of the first teeth, proceeding it may be from neglect or from defective development, or from some disease of the mucous membrane; and in pregnant women in whom the teeth are frequently found decaying round the base of the crowns in a line with the margin of the gum. That the toothache from which such subjects suffer is due to a vitiated condition of the fluids of the mouth may be inferred from the sudden access of pain so frequent after eating or during sleep, and which is so often ascribed to increase of temperature, or to the increase of circulation in these parts owing to the recumbent position, but which is speedily relieved by the use of a tepid solution of soda bicarbonate. Mr. Turner then continues:—Some of the conditions inducing toothache are equally patent or equally obscure to the general practitioner and to the specialist. Ulceration of the membranes of the mouth, for example, would be at once observed, while irritation of the dental nerve in the absence of a visible cause could only be diagnosed after careful and extended observation and perhaps some unsuccessful efforts in treatment. There are, however, conditions and suffering and consequent constitutional disturbance which the general practitioner should be able to ameliorate until such time as special skill be available. A decayed tooth may give pain although the tooth-pulp be not exposed. The alkaline lotion will not give relief, and if the saliva be tested it may be found normal. The cause of the pain must therefore be sought in the tooth itself. The decayed dentine is an irritant, this ought to be removed at least partially if not entirely. To do this without exposing or wounding the tooth-pulp is a delicate operation, and a man not in daily practice could not be expected to accomplish it completely; still, enough may be done to serve the immediate purpose. A small mouth-glass and a few excavators, such as are to be had at any dental depot, are all that are required in the way of instruments. Their cutting edges should be round or spoon-shaped, if they have any sharp angles they are much more likely to wound the tooth-pulp. The cavity should be syringed with tepid water, and that may be sufficient; but there is generally a quantity of soft dentine which should be removed if possible. The cavity should be dried out with cotton-wool or some other absorbent, and a small pellet of wool moistened with carbolic acid and glycerine should be placed in it, and over this a piece of wool partially moistened with mastic (white hard varnish answers admirably) should be packed. The packing may be accomplished with a blunt probe, and the pressure should be light and not in the direction of the pulp cavity. This will serve till a permanent plug can be introduced, but should not be trusted beyond two or three days, especially in cavities between the teeth.

If the cavity be on the masticating surface of a tooth the wool should be free from pressure on the occlusion of the antagonising teeth. If it be

an interstitial cavity, the gum beyond the margin of the cavity should be disturbed as little as possible unless it has grown into it, when the wool should be packed with the view of pushing the gum out. If the margin of the gum be left projecting into the cavity, its secretion will become abnormal owing to the irritation caused by the wool; the cavity will be inundated with the secreted fluid, which will have no way of escape, and the discomfort of the patient thereby aggravated rather than relieved. If possible the wool should not be allowed to depend upon support from the adjacent tooth for retaining its position, as the pressure is likely to separate the teeth, when the plug will leave the walls of the cavity, and so matters will return to their original condition. The wool used for this purpose should be deprived of its greasy character; hence the pink wool which has been cleansed before dyeing is best for use.

Toothache may arise from an exposed tooth-pulp, and in such a case the same course of syringing and cleaning should be pursued as already laid down, and some application used which will subdue the irritation of the pulp, applied as in the former instance and covered over with wool and mastic. Creasote is an old and deservedly a favourite remedy for such a condition of things, but it should be pure wood creasote, as that which is made from coal-tar is very likely to act as an irritant. The following mixtures are recommended for use in place of creasote, and if complication be a merit they have that advantage:—

- R. Acidi carbolici solutionis saturatae.
Chloral hydratis sol. sat.
Tinct. camph. co.
Ext. aconit. fluid. $\frac{aa}{3}$ fl. 5j.
Ol. menth. pp. $\frac{3}{2}$ ss.
- R. Chloral hydrat. 5j.
Aqua fl. $\frac{3}{2}$ ss. Misce et adde
Tinct. aconiti (Fleming) $\frac{m}{xv}$
Chloroformi
Ætheris
Spt. vin. rect. $\frac{aa}{3}$ m xx
- R. Liq. opii. sedativ.
Ol. caryophyll. $\frac{aa}{3}$ fl. $\frac{3}{2}$ ji
Camphor. 3ss.

This last I have found very useful.

Pain may arise from inflammation of the periosteum, and may be situated in an otherwise healthy tooth which has been jarred or wrenched; such cases are not uncommon in the game season from shot or bone splinters getting between the teeth during mastication. Or it may come from a tooth carrying a large mass of metal stopping having been subjected to unusual conditions, such as exposure of the side of the face next which it may be situated in riding against wind or rain. A low state of health, constipation, exhaustion after violent exercise or prolonged occupation, rheumatism, scrofula, or syphilis may all produce this inflammation. The gum surrounding the affected tooth is visibly inflamed, and the tooth is tender to the touch and becomes elongated and loose. The degrees of inflammation are various, and in its early stages may be cut short by wiping the gum dry and frequently applying tincture of iodine of double strength all over the inflamed part. A piece of cotton

wool soaked in water as hot as can be borne, and laid between the gum and the cheek, makes an excellent poultice, and if accompanied by a slight aperient is almost sure to give relief in a chronic case. The constitutional treatment required must be obvious to medical men, who have much more command over their patients in the administration of general remedies than the dentist: but I may mention that there is no medicine more likely to cut short in its early stage an acute case of periostitis connected with the teeth than five grains of Pil. saponis co. Two leeches applied to the gum over the affected tooth have repute for doing good, but in some cases prove very disappointing. If there be marked swelling of the gum towards the apex of the affected tooth, lancing is the best thing that can be done, but to be effectual it must be done thoroughly. The instrument should be strong as well as sharp, and capable of cutting through the alveolar plate between the gum and the tooth. Before lancing, Mr. Tomes recommends that the gum should be painted with equal parts of tincture of iodine of double strength, and Fleming's tincture of aconite.

Teeth may become tender around the neck from recession of the gums, or from an artificial case of teeth being attached to them. The exposed parts of the tooth should be cauterised with nitrate of silver, and if a metal plate have to be worn again immediately, a layer of tissue paper ought to be placed between the cauterised surface and the metal. As the nitrate of silver should be allowed to remain on the tooth a few minutes in order to prove effectual, the cheek and tongue and saliva should be kept away from it as much as possible by holding some ordinary cotton-wool round the tooth. When the wool is withdrawn a strong solution of salt should be used immediately, to convert any free nitrate into an inert chloride. Unfortunately the nitrate of silver cannot well be used on the necks of front teeth where a ring of sensitive decay is often found, but it is a valuable remedy where appearance is not in question.

The after pain of an extraction may be modified by washing away the blood-clot and lightly plugging the alveolar cavity with wool saturated with

R: Acidi carbolici glacialis
Liq. potassæ aa 3j
Aqua dist. 3j

as recommended by Mr. Tomes in his "System of Dental Surgery."

From the foregoing remarks it may be inferred that there are degrees of inflammation of the tooth-pulp and of the periosteum. As the treatment of subacute inflammation of the tooth-pulp is very limited and quite incomplete unless the tooth be properly plugged, so in cases of acute inflammation of that organ, the general practitioner can only relieve the patient temporarily, that is, if the tooth is to be saved. It may be well, however, to point out that subacute inflammation may arise from injury by mechanical violence, or from the masticating surface of a tooth being denuded of enamel even to a very small extent. The tooth becomes troublesome and frequently reminds its owner of its existence when subjected to thermal changes, or even the ordinary work of mastication. If on careful examination of a tooth so affected there be no signs of structural defect observed, search should be made for a decayed tooth elsewhere. When this is found, a process of examination, such as tapping with an instrument, or probing the decayed part, or directing a stream of cold

water on to it, may start all the symptoms complained of in an intensified form. In rheumatic people and people under the influence of mercury the irritable state of the teeth is often found. In acute inflammation of the tooth-pulp the history generally extends over a long period. Different substances have annoyed a tooth in which a cavity has been known to exist a long time, but which, according to the patient, has always remained the same. Sweets or bitters, heat or cold, have every now and then caused uneasiness, but when these disturbing causes have been removed the pain has ceased. But at length the periods of cessation have diminished, and the length and intensity of the attacks have increased, the pain radiates from the tooth to the other teeth and over the side of the face, and assumes a throbbing character. These attacks last several hours and then suddenly subside, but surely to return again, sometimes without the smallest apparent provocation, or if the patient lie down. This will go on for a shorter or a longer period and with varying intensity according to the constitutional state of the patient, till the pulp dies. The next state of the tooth is the commencement of an alveolar abscess, which, if attended to, may involve the removal of the tooth and even of a portion of the alveolar plate, or even further mischief.

In chronic inflammation of the tooth-pulp the pain is less regular in its advent, shorter in duration, and less severe than in acute cases. The peculiarity of most importance is the straggling neuralgic pain which is rarely referred to a definite centre. If any tooth be specified as its seat, it is not unlikely to be a sound one, but even its being decayed is not sufficient in itself to condemn it. In fact, the tooth which is nearly destroyed by caries is not so likely to be the offender as one which is in a better state of preservation. The careful application of a blunt probe to the floor of the cavity will readily detect the irritated nerve, which should be treated as already described, or the tooth removed if worthless.—*The Medico-Pharmaceutical Review.*

Odontomes.

(*TRAITÉ DES TUMEURS. PAR PAUL BROCA.*)

(Continued from page 28.)

RADICULAR ODONTOMES.

WHEN the crown is erupted, the lower edge of the dentine corresponds exactly to the neck of the follicle, which deposits a regular layer of cementum upon the fang in proportion as it is formed. Odontomes occurring at this period can, therefore, enclose both dentine and cementum. One or other of these elements may perhaps predominate, or even exclusively constitute the tumour; thus two varieties are possible—*radicular cemental odontomes* and *radicular dentinal odontomes*.

As to enamel, the conditions which preside at its formation have altogether disappeared, they cannot be produced

in radicular odontomes. I do not know of any examples of radicular dentinal odontomes, but that does not prove anything against the existence of this variety; I shall make, nevertheless, a remark, which is that the osseous tissue of which the cementum is composed is formed easily and rapidly in the midst of the most diverse conditions, whilst the development of dentine is much more difficult, slower, and, above all, more special; requires the co-operation of a row of dentinal cells, which a comparatively slight disturbance deprive of their property of dentification. It appears, then, probable that those tumours in which are united the conditions for the production of dentine, and also those of cementum, the cementum formation has every chance of predominating. Already we see that in the horse which possesses an especial cementum organ, the coronal odontomes are habitually cementum; there is, then, some reason to suppose that in the human subject, radicular odontomes would have a preference for the cemental form.

In the normal state, the blastema in which the radicular cementum is formed, organizes and ossifies in proportion to that which it produces, so that there is not found between the neck of the follicle which secretes this blastema, and the radicular surface upon which the cementum is deposited, any concrete substance, any tissue organized, or in the course of organization, and this is why it is said that man has no cementum organ. But if, from some cause or other, the secretion of the ossifying blastema is exaggerated, if there be produced in a given time a greater quantity than can in the same time be deposited and ossified upon the fang in the course of formation, this blastema in excess accumulates and forms a tumour. An analogous phenomenon is sometimes produced after the formation of the fangs, but then, its progress being very slow, the tumour which results, and which is always very small, unites with the fang which is not otherwise changed and whose elements are found in a perfectly normal condition below the cemental formation. The latter being gradually formed from successive deposits placed one above the other, affects a stratified disposition like the cementum itself, and there results a tumour, which rightly bears the name of *cemental exostosis*. But it is otherwise when the exaggerated production of the cemental blastema takes place during the formation of the fang; on the one hand it is much more abundant, and on

the other it constitutes a tumour which compresses and deforms the pulp, so that the development of the fang is seriously disturbed, seriously disfigured, and even its nature altered. The existence of a radicular odontome can evidently have no effect on the constitution of the crown which is already formed. If the tooth has several fangs, it is doubtless possible that the tumour being developed on one of them, may come in contact during its growth with the base of the pulp canals upon which the other fangs should be developed, and consequently the latter are more or less deformed. But this is not absolutely necessary, and upon the only specimen I was able to examine, the two fangs foreign to the odontome were developed, if not perfectly normal, almost so. However this may be, the tumour only occupying the region of the fangs, does not oppose the eruption of the dental crown; it may even appear in its turn upon the alveolar border after having dilated the opening in the alveolus, or rather after having determined the atrophy and absorption of the corresponding part of the maxillary bone. The details of the following observation may now be understood without difficulty:—

A man, 45 years of age,* came to consult M. Maisonneuve on account of a troublesome and painful tumour which occupied the left side of the lower jaw, the principal enlargement being in the interior of the mouth. "At the small extremity of the ovoid, represented by the tumour, was seen a carious tooth, whose crown—partially destroyed—was for the greater part masked by the prominence in the gum produced by the morbid production. Before touching the tumour, M. Maisonneuve enjoined his patient to have the carious tooth extracted, thinking thus to open a track through which the encysted product might easily be explored. This preliminary operation, which was performed by M. Devillemur, the dentist, had an unexpected and definitive result, for the tooth and the tumour annexed to it were removed together."

M. Maisonneuve presented this specimen to the Chirurgical Society on the 11th of July, 1855, as an example

* In the "Bulletins de la Société de Chirurgie," 1^{re} sévt. vi., it is said the patient was a *young man*, but M. Forget, to whom M. Maisonneuve communicated the particulars of the case, said the patient was 45.

of "true exostosis of dental tissue," and placed it in the Dupuytren Museum under No. 384 B. M. Forget, wishing to find out the structure of this tumour, begged MM. Robin and Magitot to examine it under the microscope. A microscopical section taken by these gentlemen, and preserved by M. Magitot, who willingly lent it to me, showed that the morbid mass was almost exclusively composed of cementum. M. Forget supposed after that, that it was an intra-maxillary tumour joined to a neighbouring molar tooth, and announced in the text of the description, that the section taken to follow the axis of the tooth, proved the line of intersection between it and the fang; but the plate proves, on the contrary, that the fang was an integral part of the tumour. The drawing, copied upon a very fine plate, where the dental tissues seen transparently are distinguished from one another by very characteristic differences, show that the diseased tooth is a tooth of three fangs. Two of them are almost normal, although they are too short in respect to the volume of the tooth, and too massive in comparison to their length. The third, on which the odontome is developed, is on the contrary very much deformed; it is prolonged and bent below the tumour, and terminates in the shape of a hunting horn, otherwise it shows the same structure as the other fangs, that is to say, it is constituted by a mass of dentine quite normal, covered upon its free or convex surface with a thin coating of cementum, also normal. Upon its inner or concave surface, and at its extremity, it adheres closely to the accidental production which is purely cemental, but the osseous tissue which constitutes this morbid mass, is not disposed like ordinary cementum. It is no where stratified; a great number of osseous canals are found in it in very irregular directions; finally, there may be seen on the section several large, open spaces, corresponding to the hollow cavities in the thickness of the tumour, and deprived of proper walls. All these characteristics show that it was originally a soft vascular tumour, which having acquired its full size, after having deformed and increased the prolongation of the pulp destined to furnish one of the fangs, it was irregularly and incompletely transformed into cementum, whilst the pulp pushed against its surface, produced around itself the mass of dentine which represents, properly speaking, the fang.

COMPOSITE ODONTOMES.

All odontomes may evidently belong to one or the other of the preceding groups; all, in fact, necessarily occur at a certain epoch in the evolution of the dental follicles, and ought, consequently, to find their place in a division based upon the epoch of their first appearance. But there are cases where the complexity of lesions allows of doubt upon the mode of development of the odontome. These cases are very rare, and up to the present time I know of only a single one; when several have been proved, it will be possible, in all probability, to explain the one by the other, up to that time there may be some difficulty in reconciling the most simple that we are about to describe.

It would certainly be superfluous here to describe in all its details an account of the odontome that I have thought right to designate, provisionally, under the name composite odontome. It has, besides, been published by M. Robin and by M. Forget, who have also given a good engraving where the specimen and the most striking peculiarities of its structure are represented.* Here is a resumé of this singular fact. A child, 12 years of age, was brought in 1858 to M. Letenneur, of Nantes, who established the existence of a tumour (already voluminous) in the right half of the lower jaw, a tumour which had only commenced fifteen months previously. The canine tooth, and the first temporary molar, were in position, no other tooth appeared beyond this last. The diagnosis appearing doubtful, M. Letenneur wished the relations to bring the child to him from time to time, but they only brought him again after a year's time. The tumour had acquired the size of the fist. At its anterior part, the canine and the first small permanent molars were to be seen, which, as well as having deviated from their place, already perforated the mucous membrane in order to make their eruption. (The first small temporary molar which had been seen the previous year had come out.) No other tooth appeared above the tumour; in other terms, neither the second small molar nor the two first large molars, whose eruption had not taken

* Robin. *Bulletin de l'Acad. impér de Medicino*, t. 24, p. 1205; et *Mémoires de la Société de Biologie*, 1862, 3rd serie, t. iv., p. 216. Am. Forget *Etude Histologique d'une tumeur fibreuse non décrète de la mâchoire inférieure*. Paris, 1861, brochure in 40 avec une pl.

place. M. Letenneur diagnosed a fibrous tumour of the lower jaw, and resolved to enucleate it. He excised part of the bony sheet, but the tumour was so voluminous that he could only extract it after having divided it into three fragments, otherwise, the enucleation was perfect. Two months afterwards, the child, quite cured, could eat his food without any trouble. I wrote to M. Letenneur to know the end of the case; he replied that his young patient died of meningitis five years after the operation, without having presented the slightest appearance of relapse.

The tumour sent to M. Forget, was presented to the Chirurgical Society, and examined under the microscope by M. Robin. It was covered with voluminous elevations, which separated deep indentations. The greater part of the mass consisted of fibrous or fibroid tissue, in which was found in the midst of an abundant mass of fibrous tissue, a great number of fibro-plastic ovoids quite like those of dental pulp. M. Robin did not hesitate to consider then the tumour as the consequence of hypertrophied pulp.

Near the base of the tumour, and occupying a superficial situation, there were a good number of small masses more or less conical, more long than broad, principally fibrous, but showing spots of osseous consistency, and having the appearance of abortive teeth.

Up to the present the description does not differ from that of odontoplastic odontomes in the course of dentification; but in dissecting the tumour, there were found three molar teeth encysted in as many distinct cavities. One of these were perfectly formed and completely developed, and might have been considered normal although its volume was slightly exaggerated. The second, situated in front, was a bicuspid, completely formed. The third, situated below the second, was also a bicuspid; its crown was well formed, but it had no fang and its cavity was widely open at the exterior. Finally, deeper incisions being made, two singular tumours were discovered of bony appearance larger than the tips of the finger, and encysted in two distinct cavities. The first presented at its base a hard and even compact mass, constituted by true osseous tissue; the opposite extremity had several tufts of fibrous tissue which deeply penetrated the osseous mass. The second tumour likewise, presented at its base a mass of osseous tissue, but

from the other extremity emerged a dental crown perfectly formed, and a section showed that this tooth was provided with a single fang, complete, well formed, about a centimetre long, which was fixed in the bony mass, as a tooth is fixed in its alveolus. This tooth was designated in M. Forget's text p. 13, as an incisor, and in the explanation of the plate, as a small molar, p. 24. This slight contradiction shows that it had no very characteristic form. There is, however, a peculiarity that M. Forget has not noted, but which is perfectly evident in the drawing; it is the existence of two very circumscribed although irregular cavities in the midst of the osseous mass, outside the fang of the tooth; they enclosed fibrous tissue. They might perhaps, only have been dental follicles stified in their development.

These two tumours with osseous base were evidently of the same nature. The second had a tooth, and consequently proceeded from a dental follicle; the first, although destitute, had certainly the same origin. Adding to them the three teeth previously described, it made five dental follicles englobulated in the principle tumour. This proceeded from a sixth follicle; finally the first small temporary molar, whose eruption had been normal, had been replaced before the operation by the first permanent molar, which was quite independent of the tumour. This makes the number of dental follicles developed in the molar region eight, whereas the two dentitions, united normally, only furnish seven follicles. There must have been then a supernumerary follicle. Here is then quite an isolated case. We have spoken up to the present time of supernumerary bulbs in odontomes, but we have not yet noted the formation of supernumerary follicles. We have just shown that there was at least one, but we must be allowed to believe that in reality there must have been two, represented by the two osteo-dental or osteo-fibrous masses previously described. Besides, these two supernumerary follicles did not only produce the fibrous or dental tissues which were developed during the evolution of the bulbs; an osseous compact mass, of which, unfortunately, no microscopical examination was made, but which appeared to me might be considered as a cemental formation, was developed at the end of each of these follicles. I have reason to believe that this cementum was produced by the base of the follicles, which are, as we know, in man the exclusive

agent in the formation of cementum. I am therefore disposed to interpret this fact in the following manner:—

1st. An odontoplastic odontome, with secondary multiple formation of bulbs, was developed in the follicle of one of the molar teeth, probably that of the second permanent molar. Many of the secondary bulbs of this odontome were in the course of dentification when the operation took place.

2ndly. The tumour, in growing, destroyed the alveolar partitions which separated the neighbouring follicles and englobulated these follicles; hence the three molars which were encysted towards the anterior part of the tumour, which showed the second temporary bicuspid, the second permanent bicuspid imperfectly developed, and the first molar.

3rdly. Two supernumerary dental follicles developed in the thickness of the tumour, each produced a dental bulb surrounded by a mass of cementum. Hence resulted two small tumours, which were isolated in the midst of the principal tumour, and which I consider constitute a special variety of cemental odontomes, hitherto without analogy. M. Forget interprets quite otherwise these two isolated tumours; he considers them as coming from two normal alveoli; first hyperostosed, then sequestrated and become in the middle of the principal tumour; but on the one hand the osseous partition of the alveoli does not constitute a separable organ; and on the other it is sufficient to reckon as we have done, the teeth which are more or less regularly formed in the molar region, to recognise that there must have been at least one and probably two supernumerary follicles developed; we may see beside that the supernumerary follicles are much more exposed than the normal follicles to become the seat of the work of hypergenesis which produces odontomes.

Gold Foil Work at the London Dental Hospital.

BY JAMES MERSON.

PERHAPS a few remarks on the manipulation and assortment of the different kinds of gold used at this hospital will not be intruding on the valuable space of your journal. I hear a great deal said from time to time about

the necessity of having every instrument scrupulously clean and free from oil or grease, as regards folding or preparing the foil. Taking this precaution I strongly advocate, still, with soft, or non-adhesive filling, I am inclined to fail in seeing the great advantage derived. For curiosity sake I prepared a cavity in the grinding surface of a lower molar not long since, then I folded some soft foil, which was immersed in sweet oil, after being thoroughly saturated I proceeded to plug the tooth. This was effected in a little longer time than if done in the ordinary way, with an equally good result. The plug was tested by several, and pronounced a good one. I merely mention this as an experiment tried here, in order to gratify an idea of mine as to the absurdity in raising an objection to any operator touching the fold with his fingers, &c. As to an adhesive filling, one and all must confess how essential it is to guard against the foil pellets or cylinders touching anything of an oleaginous nature, as well as the over-heating of the gold, and avoidance of any moisture getting access to the cavity. I have often noticed on examining the mouths of patients elsewhere or amongst friends casually, that by testing the gold plug with a probe I have repeatedly found them so soft that with a very little persuasion the whole of an elaborate looking filling might very easily be removed. On questioning them who the operators were, I ascertained they had been done far and near, by that I mean to infer, in our own country and abroad. Under what circumstances and difficulties these exceptional plugs were inserted I do not for a moment wish to dwell upon, nevertheless, such was the case. I think, in fact, there cannot be a doubt, but that averaging the number of plugs daily put in by practitioners, with so many new appliances at hand (not forgetting two invaluable friends, the rubber dam and engine) better and more finished plugs are turned out of hand than ever, and possibly some of your readers will think or remark, so there ought! I wish it to be understood that I am alluding to the better class of plugs more generally done throughout the profession at the present day. I am inclined to think that the scarcity of good gold pluggers of the past has been partly the cause of elevating the few to the reputed credit and honour of being such, for without any of our modern inventions they succeeded in putting such stoppings in, that after thirty or forty years

have elapsed, are quite equal to the severe test of a sharp probe or magnifying glass.

I believe in the old proverb, that "There are as good fish in the sea as ever came out of it," the same applies to gold pluggers. One thing to be borne in mind is, that the rising dentists have such privileges offered to them, by being able to practise the art of filling with every advantage at this school during the two years they are required to be here by the curriculum. The staff is always ready to further their interest by giving suggestions of practical importance in gaining their point, namely, a solid and durable plug. I hardly think any young man has had a fair chance of succeeding in his career before he has undergone the theoretical and practical tuition taught here and at a general hospital. I only hope if there are any gentlemen dubious on this point, that they will no longer labour under this delusion, but unhesitatingly decide on investing the time and money, which ultimately would prove one of the best investments they ever made.

The following is a list of the different kinds of gold we are using, viz. :

Ash and Sons' adhesive cylinders.

 " non-adhesive foil.

Jamieson's crystal blocks.

Watts's crystal.

Leslie's crystalline.

Nickold's prepared pellets.

 foil.

 " Abbey's foil.

White's superior foil.

 " extra-cohesive globe foil, rolled, heavy.

 " semi-cohesive globe foil.

Williams's foil.

 " cylinders.

Morgan's plastic.

Valleau's cohesive foil.

Pack's pellets.

I will simply state that from the solid plugs one gets with two or three of these makers gold ought readily to account for an ounce of the one getting used before an eighth of another. The students have the option of working either or all, so that after leaving here they can select and use what met with their approbation.

To comment on each would simply be an infringement on your estimable pages.

With reference to Williams's cylinders, No. 20B, No. 15B, and No. 5B, I think where suitable for the cavity the amount of time saved in stopping and release to the patient, should be a consideration to every operator. Each gold seems to work somewhat differently in the various operators' hands, but for my own part I prefer non-adhesive, or soft foil filling where practicable, which I usually pack with White's superior foil. In the case of an adhesive filling I simply heat the same foil (No. 4) over a spirit lamp, and sometimes finish off with heavy extra-cohesive globe foil, rolled, with the most satisfactory result.

On Palladium Amalgams.

BY G. H. MAKINS.

A paper read before the Odontological Society, June, 1875.

FROM remarks that have been made to me from time to time by some who are in the habit of employing the valuable amalgam of palladium with mercury it seems that not unfrequently there is much uncertainty in the resulting combination dependent upon some manifest and very active chemical action taking place, and this, at times, so energetic as to induce overheating of the compound to the extent of even developing explosion.

Occurring, as the accident does, in some specimens of palladium and not in others, we are directed for its cause to peculiarity in the metal, and that, probably, the result of some particular method of preparation of the spongy or pulverulent form used.

Considering that the amalgam, when made without such accidental drawbacks, has so many recommendations to its use, some little inquiry as to their cause and origin seems to be quite worth entering upon.

The manufacture of palladium and the production of the spongy form are in the hands of a few manufacturers only in our country; indeed Messrs Johnson and Matthey are by far the largest producers, and it is, moreover, a process only profitably carried on by such a firm; and again, as little has been published upon it, I shall offer no apology

for asking your attention to some points which might otherwise be considered elementary, and shall, therefore, first say a few words upon the sources of the metal and the plans for the preparation of the spongy form.

Now, although palladium is one of the associate metals of platinum, in the ore of the latter its relative amount is very small. In several published analyses by Berzelius and others, the highest amount named only reaches 1·10 per cent.; and hence, palladium was esteemed a rare metal. But its properties and actions studied, it soon came to light in a source whence for some years it was much more abundantly obtained, viz., in Brazilian gold-dust, and hence its price fell until about £1 per ounce was the usual cost; indeed, it was at one time sold as low as 14s. per ounce, Australian gold coming into our market and the Brazilian supply falling off, the yield of palladium again diminished to such an extent as to raise its price to the present high one at which it is sold; and, considering the highly injurious effect which palladium has upon the malleability and ductility of gold, it is no wonder that our refiners and bullion merchants should be careless about the supply of a gold-dust containing it.

It is found in this gold to the extent often of 5 to 6 per cent., and its separation is an easy operation; indeed, it is principally the ordinary web operation of gold refining; but the palladium being dissolved out in company with the silver by means of nitric acid, these two metals have to be subsequently separated. Thus, the details of the operation are, first, the fluxing of the gold-dust for its preliminary purification, then the ordinary quartating operation by fusing with silver, and having granulated the alloy, boiling it in nitric acid. The nitric solution poured off from the residual gold is treated with sodic chloride to throw down all the silver as argentic chloride. The palladium is now recovered by acidulating the solution with some sulphuric acid, and then putting in plates of zinc. Thus it is thrown down, but with it also any platinum, copper, iron, or lead present. Thereupon, the brown powder precipitated is digested in ammonia, by which the greater part of the palladium and the copper will be dissolved, and these two are finally separated by the addition to the solution of some hydro-chloric acid, by which the palladium goes down as a double chloride of palladium and ammonia, whence,

on heating, a pulverulent or spongy residue of palladium is left.

But the spongy preparation of palladium is produced from the metal by other methods, and one, by which much of the palladium which comes into your hands is prepared, consists in first forming a sulphate of the metal, and then treating this solution with ferrous sulphate. This latter agent throws it down in the metallic state, just as it does gold, and in very much the same physical condition as to coherence and sponginess. These methods of manipulation and treatment, as also that where mercuric cyanide is employed, give resulting metal not very greatly differing in character ; and hence, it may naturally be asked, why the precipitates should, in the hands of some practitioners, give such uncertain results when treated with mercury for amalgamation.

Presuming that pure mercury is employed, and that the operator is careful to have it in excess so that the actual amalgam is dissolved or suspended in the excess, this latter being squeezed out before introducing the amalgam into a cavity,—these precautions being observed, I think most operators who have much used this amalgam will testify to its union with, but slight evolution of, heat ; and the fact of the ease with which it is manipulated in practice, and the ultimate good result of a solid plug of an alloy of noble metals, which has moreover, slight expansion on setting, are all points greatly in its favour.

But the question as to the cause of the excessive heating of the amalgam which sometimes occurs in the mass, even rising to a point at which, from the same causes, explosion may take place in the substance of the material, no doubt, is to be answered by pointing to another fact, which I will briefly enter upon.

In 1868 the late Professor Graham discovered that some metals when brought in contact with nascent hydrogen, under certain conditions, will take up large amounts of the gas, and from the little apparent change to external appearance in the metal employed, he termed the action occlusion of the gas ; and on the often mooted theory that hydrogen is the vapour of a highly volatile metal, he says that “the idea forces itself upon the mind that palladium, with its occluded hydrogen, is simply an alloy of this volatile metal, in which the volatility of one element is re-

strained by its union with the other, which owes its metallic aspect equally to both constituents."

The metals in which this property has been observed are palladium, pure tin, nickel, and cobalt in plates; but of these palladium possesses by far the greatest power of occlusion.

Graham obtained his results by electrical action, and experimented with a small battery and an ordinary voltmeter. In the latter instrument, however, in place of employing two platinum electrodes as usual, he made the positive pole or electrode of platinum wire, and the negative of the metal to be tested as to its power of occlusion; palladium, for instance.

On putting the arrangement into action and decomposing water, the hydrogen which would have been evolved from a platinum negative electrode was with a palladium one absorbed by it, and that for an hour to an hour and a half of action. After this time the palladium pole, on being removed and examined, was found to have increased in length nearly a 50th part, and thus, accurately speaking, an original length which might be represented as 100 had become 101.605, the bulk also having increased. Calling the cubic measure 100, its gain was to 104.908.

At ordinary temperatures, beyond this increase of bulk, no sign of the actual condition of things is apparent, but immediately the metal is strongly heated the gas begins to be again separated from it. The wire is now, therefore, heated in a glass tube, and the gas evolved, collected and measured, when, in the case of palladium, no less than 936 times the volume of the original electrode was found to be occluded by it.

The expulsion of the hydrogen from the wire is attended with extraordinary contraction of the latter, for it not only recedes to its original length, but falls below about as much as it had increased. But as the density did not increase, it proves that the wire contracts in length only. Graham's own explanation of this is, that it results from the wire in drawing having its particles left in a state of tension in the direction of its length.

Although evolution of the hydrogen takes place directly on heating, yet in a piece of palladium foil charged and heated to redness, so that a drop of water placed on it will hiss, the hydrogen is not all expelled again without heating

for a considerable time to redness. Palladium will, under other conditions, take up hydrogen; for example, if heated in *vacuo*, and then plunged into the gas. Without this preparation by heating, as above, the action does not go on. Two experiments were made as follows:—A piece of foil weighing 1.58 grammes (equal to 24.401 grains,) as taken from the manufacturer, was heated in *vacuo* for an hour, when it gave off 1.50 cubic centimetres of hydrogen. It was next heated in hydrogen to 245° Centigrade, and subsequently allowed to cool slowly, so as to favour absorption of the gas. This over the metal was transferred to a distillatory tube, and appeared at 178° Centigrade (about 64° Fahr.) to give out nothing; but on putting under it a combustion furnace, gas came off freely to the amount of 69.92 cubic centimetres, the one volume of metal occluding 526 volumes of hydrogen.

The second experiment was precisely similar, except in using a temperature of 90° to 97° Centigrade for three hours for the absorption, when the palladium was found to have taken up 643.3 volumes of hydrogen. Spongy palladium obtained by ignition of the cyanide was found even more absorbent than this foil, 686 volumes being taken up.

I may just remark, that alloys of palladium show just the same power of occluding hydrogen when the alloying metal does not exceed half the alloy, but alloyed wire returns to its original length without any shortening. And again, that the occlusive power is peculiar to hydrogen, for spongy palladium was examined as to its power of absorbing oxygen or nitrogen, and it was found that not the smallest occlusion of either took place.

I may here mention another curious fact, as bearing also upon the subject. Boettger placed a plate of platinum in a solution of palladic chloride, and then submitted the latter to electrolytic decomposition; thus, he deposited palladium in a spongy state upon the platinum. In fact, he carried on just an analogous operation to that by which the silver plates of a Smees battery are covered with spongy platinum. Next, on removing this palladiumized plate from the cell, and drying it rapidly by bibulous paper, it spontaneously increased so much in temperature, that after a few seconds it was in a bright glow, and he found that if wrapped in gun cotton the latter was exploded by it.

I have ventured thus to bring forward facts, some of

which have been some time published, and may consequently be familiar to many here; but I consider that they bear so directly upon our subject that I have not scrupled thus to bring them together, in a condensed form, for your consideration.

In amalgamating palladium with mercury I believe that we get true chemical action set up, and that some of the resulting amalgams are definite chemical compounds, analogous to some of the well-ascertained compounds of silver with mercury. The heat evolved during union, together with the rather rapid change of form or solidification of the at first liquid amalgam, to a great extent tend to the same conclusion, notwithstanding that it may be urged that all bodies in passing to more dense physical states evolve heat.

These amalgams, it is true, are decomposed by heat, but it is only completely done at a very full red heat, approaching whiteness. At this point the mercury is evolved, and palladium left. Upon these views I have made some experiments, using palladium and mercury in atomic proportions, and afterwards submitted them to examination; first subjecting them to strong pressure, so as to separate all the uncombined mercury, and then examining the residual amalgams, and although I have not in all cases obtained perfectly definite combinations, yet I have got results which go far to corroborate the belief that atomic or chemical combinations are the rule in these cases.

First, the metals in the proportion of one atom of palladium to 3 atoms of mercury were worked together, and allowed to stand for a time; here combination seemed complete, considerable heat was evolved, and a grey pulverulent mass obtained, from which no mercury could be squeezed out, even by a very strong pressure; in fact, it was permanent, as a compound of 1 atom of palladium with 3 of mercury.

Next, 1 atom of palladium was treated with 5 atoms of mercury, and similarly pressed. After all mercury ceased to squeeze out it was removed and analyzed, and found to consist of 1 atom of palladium with 2 atoms of mercury.

A third experiment, similar to the first, was now made upon proportions of 1 atom palladium and 3 mercury, and, pressed before it hardened: this gave out mercury and a compound of 1 palladium with 2 of mercury remained.

Next, 1 atom of palladium was mixed with 6 atoms of mercury. With this excess of mercury the result was not so satisfactory, as it gave, on analysis, 1 palladium with rather over 3 atoms of mercury; in fact, enough excess of the latter to prevent my noting it as a compound of 1 atom with 3. And on repeating this experiment with similar large excess of mercury, a second uncertain result was arrived at.

Supposing such strongly-pressed amalgams with no great excess of mercury are used in practice, very quick manipulation would be required, for they set generally rather rapidly, and ultimately become very hard. But where the mercury is in greater excess, this hardening is much more gradual. And I have no doubt but that the latter condition is the one in which these amalgams are worked by those who most successfully employ them. Indeed, in some old stopping which I examined I found such to be the case, and the mercury largely in excess of 2 or 3 atoms to 1 of palladium, although, nevertheless, the stopping was hard and solid.

Now, considering the trustworthy testimony as to the almost explosive condition of some of these amalgams, we may assume that such do at times occur. In my own experience I have failed to produce such violent action, although I have tried to do so, using different methods of manipulation, and different specimens of palladium in order to bring it about. And I must here express my obligation to Mr. Matthey and Mr. Sellon, for kindly supplying me with various specimens of palladium for the purpose.

I think that where they do occur they may fairly be attributed to some action dependent upon the displacement of Graham's hydrogenium, by the superior affinity of the palladium for mercury, and the consequent sudden resumption of the gaseous state by the hydrogen (or hydrogenium.)

In conclusion, although speaking without the practical experience of most around me, who have employed this amalgam for fillings, I cannot help thinking that it must be a most useful one. It is easily and quickly formed, and I believe that with a fair excess of mercury, and care in manipulation, it is commonly free from some of the defects, or I may say accidents, attributed to it. While thus advising an excess of mercury, I may observe that this does not interfere with its attaining a sufficient degree of hard-

ness, for amalgams containing mercury in excess of two or of three atoms become quite hard. Indeed, in some cases these set so speedily that they need tolerably quick application. In the specimens of old stopping I have examined, I have found such excess on analysis. Where this is the case, they generally blacken more or less in the mouth, having at times even the appearance of coal from their glossy blackness.

Lastly, there is in palladium amalgams just that amount of expansion when they set which ensures a solid plug. I have taken the specific gravity of some, and in cases where, from the relative amount of the constituents, the calculated specific gravity would be about 13·1, I found it was really only 12·62, showing, you will observe, a slight but sufficient expansion on solidification.

In bringing these matters thus briefly before you this evening, I trust I have not employed your time and attention unprofitably.

Dentigerous Cyst in the Upper Jaw.

By A. W. STOCKS, M.R.C.S.

SURGEON TO THE SALFORD ROYAL HOSPITAL.

R. D. AGED 18, a healthy-looking girl, residing at Morecambe, came under my care for the treatment of a tumour occupying the right cheek, forming a projection into the nose, filling up the canine fossa, projecting outwards under the malar eminence, and encroaching on the mouth. In the latter position, it was found to occupy the space of the right lateral incisor, canine, and first bicuspid teeth, which were wanting. The alveoli corresponding to the former two were found to be dilated (for, although three teeth were absent yet there were to be found only two alveoli), and the edges of the alveolar plates could be distinctly traced, having projecting through them a soft semifluctuating tumour, on the surface of which ramified numerous large veins. The movement of the upper lip was considerably interfered with. The tumour had existed for about three years. The appearance of the girl's face was peculiarly that produced by a dilatation of the antrum of Highmore. There was not much pain, and the voice was rather nasal. An exploratory puncture through the dilated alveolus by means of a cannula and trocar let out a small quantity of bloody serum. No distinct fluctuation could be made out between the most prominent parts of the swelling and the projection into the mouth.

On November 12th, 1874, the cheek having been raised from the front of the upper maxilla (under chloroform) without any wound of the external skin, the tumour was easily perforated by a gouge, and the opening enlarged

by a pair of nibbling forceps sufficiently to admit the finger into the antrum, which was found to contain a clot of blood and some serum, the former being the result, no doubt, of the late exploratory puncture. On passing the finger into the cavity, a hard pointed substance was found projecting from the roof of the antrum, about a quarter of an inch from its posterior wall, and, after a few forcible but vain attempts, a fully developed canine tooth was removed by the forceps. The cavity was filled with lint and the patient sent to bed. Her progress towards recovery was uninterrupted, and, on January 16th, there was only a slightly fistulous orifice at the junction of the lip with the upper jaw. The distortion, which continued as great as before the operation, has been much reduced by pressure obtained by wearing a small India-rubber ball firmly bandaged on the cheek during the night; and the projection into the mouth has shrunk very much; indeed, now there is scarcely any distortion left.

The tooth which was removed from its abnormal position is in all respects a well developed canine (permanent) tooth measuring barely four-fifths of an inch, the crown being exactly three-tenths of an inch long. The fang, however, instead of having a smooth surface similar to that found in most teeth, is surrounded by a firm deposit of bone, giving one the idea that it was not implanted in an ordinary alveolus or socket, but rather ankylosed to the bone in which it was found. It appears that some time ago (how long she could not say), according to the girl's statement, she had her "eye tooth" on that side removed; that it was a "sucking tooth"; and that the corresponding tooth in her permanent set never appeared. The lateral incisor and first bicuspid teeth were extracted at a much later period, with a view to the cure of the tumour. How the tooth got into the position in which it was found, is very difficult satisfactorily to explain; but it would appear not improbable that, in the extraction of the primary tooth, some damage had been done to the pulp of the secondary tooth, and that the germ had been lifted out of its normal position and carried, so to speak, on the top of a cyst formed by a morbid secretion in the dental sac, through the antrum, and so taken root in the orbital plate of the superior maxilla, where it was found.

The case mentioned in Bryant's *Surgery*, page 279, is somewhat similar to the above, save that in it the tumour was formed by a solid instead of a fluid growth. The engraving on the same page gives very fairly the peculiar external appearances of the above case.—*The British Medical Journal*.

London Dental Hospital, Leicester Square.

CASES TREATED AT THE DENTAL HOSPITAL OF LONDON DURING THE MONTH OF JUNE.

The first I will allude to was the one said so much about in your last journal—I refer to the dubious ulcer in the floor of the mouth, situated in the sublingual gland. As no definite history could be obtained from him at first,

although he certainly acknowledged that previously he had syphilis, still, Mr. S. H. Cartwright thought it advisable to give him the benefit of the doubt by putting him under a course of iodide of potassium and perchloride of mercury, &c., and wait the result. Seeing clearly now that this treatment has been of little avail, and the characteristic symptoms of epithelioma are developing themselves, it remains but to remark that his future career will doubtless be an anxious and deplorable one. I have omitted to mention the conclusive evidence arrived at from the presence of the cells under the microscopical section.

The second was that of a young woman, who applied here for the removal of two upper bicuspids, with the nerves exposed through caries. They were extracted, when the patient appeared as if about to faint, instead of which she complained of great stiffness and coldness in the fingers, begging some gentleman to rub her hands. I did one and the operator the other for three or four minutes, as they certainly were exceedingly clammy and frigid. In the course of five minutes the circulation was restored, and then the fingers could be flexed, which before was scarcely possible. I gave her Spt. Ammon. Aromat, and requested that she should lie on the sofa a little while prior to leaving. This she did for ten minutes, and started. I asked her if she had been subject to fits of any sort, when she replied in the negative. This possibly was due to hysteria.

The third was that of a patient who came here for advice, he having suffered intensely with neuralgia for several months. On examination, he had a lot of bad stumps and broken teeth with the nerves exposed. Many of these were removed at the two first visits, deeming it more prudent to clear one side at a time. On his third visit (a week elapsing between each), I attempted to extract a crownless second upper molar which was impacted between the first and wisdom. To this tooth he had already attributed the cause of a great deal of his trouble. I proceeded in my usual way, and after three firm wrenches found it immovable. I might remark he was a big fellow, standing six feet or more. After pausing a moment or so I again attempted, this time I succeeded in turning it transversely, but even then I could not take it away. After persevering many minutes, at last down it came entire, and proved an exceptionally fine specimen of exostosis. I ordered him a

strong nerve tonic, twice daily, coupled with other advice, which has mitigated the severity of the paroxysms, and improved his general health.

The fourth was that of a girl, æt. 15, who was sent here on the recommendation of a dentist for advice. It possibly is a case of hypertrophy of the gums and alveolar processes. It was hereditary, as her mother and mother's uncle were similarly afflicted. Her only sister, three years older, was quite free from it. As she was transferred to Mr. Tomes, and afterwards to the Middlesex hospital in order to get the combined opinions of Mr. Campbell de Morgan and Mr. Lawson, for the present I must postpone any further report.

The fifth was another of those bad cases brought about by being treated elsewhere unskillfully, by advising poultices to be freely indulged in, for mischief that arose in the lower jaw, due, principally, to the lower wisdom and some stumps. The patient, who was a porter, æt. 17, was much emaciated. He was really more fit to be an in-patient at a general hospital than an out-patient here, still, as he appeared anxious to abide by my advice I adopted the following treatment:—The wisdom was extracted, which afforded a free exit for the pus. I requested him to discontinue the linseed-meal poultices, but rinse the mouth five or six times a day with water as hot as he could bear, varying it with Decoc. Papaver occasionally. I advised him to take some good strong beef tea, milk, &c., and return again. This he did, which has reduced the swelling, but I predict some little time will have to elapse before he returns to his vocation. At the suggestion of the Dean (Mr. T. A. Rogers,) who by chance saw him, I ordered him to obtain some spongio piline, cut a small piece off, and keep it in the mouth over the region of the abscess. His medical adviser still continued to prescribe tonic medicine, so that I declined ordering anything.

July 7th.—The patient is doing well.

JAMES MERSON.

Dental House Surgeon.

Contents of our "Exchanges."

The Dental Register, June, 1875.

COMMUNICATIONS.—Salicylic Acid.—Dental Pulp and Pulpless Teeth.—
Anatomy.—Is Dentistry a Speciality of Medicine?—Dental Education.—
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EDITORIAL.—Salicylic Acid.—Dental Education.—Tenn. Dental Association.—Dental Society of the State of New York.—Northern Ohio Dental Asso.—Biographical.

Johnston's Dental Miscellany, June, 1875.

“The New Chemistry.” By W. S. Elliott, D.D.S.—Address to Medical Students. By Rev. E. A. Washburn, D.D.—Hints to Secretaries. By T. B. Welch.—New York Odontological Society.—Our London Letter.—The Tale of a Tooth.—The Mechanical Production of Oxygen Gas.—Electric Light.

NOTES.—A Flexible Cable.—Verdict against a Dentist.—American Dental Convention.—California State Dental Association.—Pennsylvania State Dental Society.—Maryland Dental College.—Dental Society of the State of New York.—Meterological.—On Poisoning by Carbolic Acid.—Absorption of Oxygen by Leaves.

The Missouri Dental Journal, June, 1875.

An Odontoid.—Calcification of the Pulp.—Nose, Throat and Ear.—The Physical Properties and Physiological Action of Dental Amalgams.—Treatment of Deciduous Teeth.—Celluloid.—A Great Discovery about Light.—Amalgams Tested for Leakage.—Physiological Arguments for Vegetarianism.—Conductivity of Electricity and Heat in Metals.—The Microscope Corrects an Error.—Dr. Kingsley's Artificial Palates.—“Transactions” of Dental Societies.—American Dental Convention.—Dental Society of the State of New York.—Wisconsin State Dental Society.—Cement for Iron.—Ether as an Anthelmintic.—Acid in the Gastric Juice.

The Dental Cosmos, June, 1875.

ORIGINAL COMMUNICATIONS.—Dental Pathology and Therapeutics. By J. Foster Flagg, D.D.S.—Dental Education. No. 2. By Robert Arthur, M.D.—A New Description of the Inferior Dental Nerve. By Professor Sapolini. Translated by John Guiteras, M.D.—Permanent Separation of Proximate Fillings. By J. A. Woodward, D.D.S.—The Preparation of the Teeth for Filling. By Corydon Palmer, D.D.S.

PROCEEDINGS OF DENTAL SOCIETIES.—New York Odontological Society.—Pennsylvania Association of Dental Surgeons.—American Academy of Dental Surgery.—Mississippi State Dental Association.—Chicago Dental Society.—Pennsylvania State Dental Society.—Maryland Dental College.

EDITORIAL.—The Educational Problem.

OBITUARY.—Resolutions of Respect to the late Dr. F. R. Thomas.—Dr. N. H. Drew.—Mr. Edwin Sercombe.

PERISCOPE.

The Pennsylvania Journal of Dental Science, June, 1875.

ORIGINAL COMMUNICATIONS.—Dentistry as a Medical Speciality. Dr. Fitch—What is to be the Future Status of Dentistry? Dr. Smith.

DENTAL SOCIETIES.—New York Odontological Society.—Amalgam Experiments—Essay—Dr. Cutler.—Physiological Properties of Dental Amalgam—Essay—Dr. Hitchcock.—Consideration of the Different Metals and Alloys.—Of the Manner of Using the Different Metals and Alloys.—

Discussion.—Pennsylvania Central Dental Association.—Harris Dental Association.

NOTICES.—Pennsylvania State Dental Association.—American Dental Convention.—American Dental Association.

EDITORIAL.—Amalgam.

New Inventions.

NOVELTIES BY THOMAS MAHONIE.

THE spittoon, of which I send you an engraving, consists of a hollow iron column 30 inches high, painted bronze, a brass arm containing an inner pipe is made to work around thereon. At the other end of arm there is a blue glass basin, and around



the inner edge is a brass pipe perforated and connected with the inner pipe of arm and column, thence to supply water main. A stop cock allows the basin to be regulated with a supply of water, which water passes away with all mouth washings, &c., down hollow arm into waste pipe, which carries all away—the thing is nicely got up, and is liked for convenience and cleanliness.

The spring for clamp is of sheet-tempered steel, bent so that when at bottom of clamp it is raised $\frac{1}{4}$ -inch, the flask or flasks are placed in clamp, and by means of the thumb screw the spring is straightened, and by this contrivance I can always depend on the two halves of flask being brought well together.

The Amalgam introducers consist of glass tubes and wire rods of various sizes, to suit cavities. The tooth is prepared, Amalgam mixed in mortar, a tube is selected that shall form a disc suitable for cavity. The absorbent is removed and amalgam is discharged from the tube into the cavity, by which means the tooth is easily filled, or, at least, so I have thought for over two years.

Devonshire Street, Sheffield.

JAMIESON'S CRYSTAL BLOCKS.

WE have been using with the greatest satisfaction, Jamieson's Crystal Blocks. They are soft—without being crumbly—cohere under pressure into a very dense mass—possess the requisite degree of adhesiveness, and finally, finish off with a good solid surface, capable of being filed without the gold tearing away, and after burnishing, having a uniform appearance instead of presenting that spotted look so often seen with Cohesive foil, and indicating the points where contact has not taken place. Altogether, Jamieson's Crystal Blocks have proved in our hands more satisfactory than any of the others.

TO THE EDITOR OF "THE MONTHLY REVIEW OF DENTAL SURGERY."

DEAR SIR,—Will you allow me space to apologise to Mr. Fletcher for not noticing his contrivance for making amalgam pellets when describing my own instrument in the May No. of your Journal.

The truth of the matter was, I never heard of Mr. Fletcher's machine till Mr. Ash showed me one the day I took him the pattern of mine, which was some time after my notice was written. Mr. Fletcher's is almost the same as the instrument I tried seven months ago. As I am not interested in the sale of my instruments, I have not the temptation to which Mr. Fletcher has yielded—of expressing any opinion as to the relative worth of either machine—but can safely leave that in the hands of others.

Yours truly, T. WILSON HOGUE.

TO CORRESPONDENTS.

ALL communications intended for the Editor should be addressed to the care of Messrs. SMITH, ELDER & Co., 15, Waterloo Place, Pall Mall.

All inquiries respecting Advertisements and Subscriptions should be sent to Mr. GEORGE BUTCHER, 4, Crane Court, Fleet Street, E.C.

LONDON DENTAL HOSPITAL.

CASES TREATED FROM JUNE 1ST TO JUNE 31st, 1875.

Extractions . Children under 14	...	...	...	416
Adults	...	...	...	677
Under Nitrous Oxide	...	...	...	338
Gold Stoppings	...	...	...	154
White Foil ditto	...	...	...	33
Plastic ditto	...	...	...	186
Irregularities of the Teeth treated surgically and me- chanically	...	...	...	33
Miscellaneous Cases	...	...	...	244
Advice Cases	132
		Total	...	2213

JAMES MERSON, *Dental House Surgeon.*

J. BLUNDELL,

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THE MONTHLY REVIEW
OR
DENTAL SURGERY.

No. III.

AUGUST, 1875.

VOL. IV.

OVERWORK.

FEW men suffer more from the results of overwork than the successful Dental Surgeon. The medical practitioner has his morning's occupation at home, and then some four or five hours' rest, driving from house to house in his carriage. Not so the successful dentist; from nine till six he must be found beside the operating chair, with every faculty on the stretch. Muscle and brain thoroughly under control, yet ready to answer to every call whether slight or severe, with the same zeal and earnestness at 5.30 as at 9.30; his sympathy with the sufferings of the patient as fresh and responsive at the end of the day as at the beginning. No less delicate touch, no less perfect sight, no less keen perception of all the requirements of the case. This it is, that produces the absolute exhaustion, both physical and mental, of the dental surgeon in full practice. It would be but a melancholy, though, perchance, an useful

task, to recall the names of those who, labouring diligently in the foremost ranks of our profession, have passed away, not faint-hearted, but worn out by the toil of life, ere their time. At this season of the year we are forcibly reminded of the necessity for rest; and the recollection of those who have passed to a rest eternal, should remind us that if we would finish the work that is set before us, we should take a lesson from the seasons, and alternate activity with repose, remembering that energy that is occasionally allowed to accumulate is often more useful than that which is being continually dissipated, and that much may be attained in the future by resting quietly for the present. The perpetual activity of the present day is not unnatural, when we see how success is worshipped, and wealth and position are bowed down to, but the Nemesis of success follows with unerring footsteps, and overtakes its victim either in an early grave, or premature old age. To work whilst it is called to-day is doubtless a good thing, but the day *may* be too long, and the work *may* be too severe. The wise man, is he, who in the battle of life, fully counts the cost and carefully estimates his own strength.

The Month.

LONDON DENTAL HOSPITAL.

MR. David Hepburn, L.D.S., R.C.S., has been appointed Assistant Dental Surgeon to the London Dental Hospital. Mr. Hepburn brings

to the work of the Hospital unusual ability and considerable experience, and in the future which is before him, will we are sure, attain to that position of eminence and esteem with which the name of Hepburn has been for so many years identified.

NATIONAL DENTAL HOSPITAL.

The following Appointments were made at the last Meeting of the Committee of Management:—

Oakley-Coles, L.D.S., R.C.S.—Dental Surgeon, *vice* Mr. Joseph Steele, resigned.

Canton, Arthur F., L.D.S., R.C.S.—Assistant Dental Surgeon.

Clark, Lane, L.D.S., R.C.S.—Assistant Dental Surgeon.

Stocken, James, L.D.S., R.C.S.—Assistant Dental Surgeon, *vice* Mr. G. Gingell, resigned.

White, Charles E., L.D.S., R.C.S.—Assistant Dental Surgeon.

KING'S COLLEGE, LONDON.

Mr. S. Hamilton Cartwright has been elected Professor of Dental Surgery at King's College, and Dental Surgeon to King's College Hospital. The resignation of his father, Mr. Cartwright, F.R.C.S., we announced in our last issue. Mr. Hamilton Cartwright is now *Professor* of Dental Surgery at King's College, and *Lecturer* on Dental Surgery at the London School of Dental Surgery, Leicester square. We presume that the *Lectureship* on Dental Surgery at the Dental School will, within the next month or two be declared vacant, as Mr. Hamilton Cartwright will, we are sure, be one of the first to see that by remaining *Lecturer* on Dental Surgery at Leicester square and *Professor* of the same subject at a rival school, he occupies such an anomalous position, that he will by his resignation at the earliest opportunity, place himself right in the estimation of the profession.

BALDOCK'S NERVE PASTE.

We have ourselves been using this preparation for the last two months with great satisfaction, and we shall be very glad to hear from our subscribers their opinion as to its merits. It certainly seems preferable to the ordinary mixture of arsenic and creasote, for the devitalization of the dental pulp, as it is readily applied and generally painless in its action.

CURE FOR THE TOOTHACHE.

The following appears in "Hardwicke's Science Gossip" for May 1875:

--Dr. Phipson's work on "The Utilization of Minute Life" contains the following paragraph with reference to those familiar insects, Ladybirds (*Coccinella*). "They secrete from their legs when captured an acrid yellow fluid, having a disagreeable odour. It is, doubtless, to this fluid that they owe their property of curing the most violent toothache when they are placed alive in the hollow part of the tooth." I should be glad to know whether any correspondent has observed the emission of this secretion, and experienced its strange medicinal property. If this is so certain a cure for "the most violent toothache," could not this valuable fluid be artificially extracted from insects cultivated for the purpose, and would it not become a rare remedy for such a troublesome malady?—*G. Dannatt.*

MR. TOME'S CONVERSAZIONE.

THE evening reception of Mr. Tomes, the president of the Odontological Society, was individualised by the profusion of art treasure, with which some leading dentists of taste had decorated the walls; and by the novelty of the place, for, to the visitors not belonging to the dental professions this was for the most part the first opportunity of inspecting the new dental hospital in Leicester Square. Its exterior gives a greater idea of space than is realised on inspection, the frontage being great, but the building shallow. The whole of the fittings are, however, admirable. The operating-room which accommodates, we think, twenty chairs at a time, is well lighted; the museum, of which Mr. Tomes' rich collection, forms the basis, is very interesting if not unique, as we suspect it to be. And it was not possible to go over the place without mentally stripping it of its holiday contents and festal draping, and reflecting that it demonstrated a very great practical progress in the education of dentists, and a very distinct advance in the method of teaching, and, consequently, in the average practice of a very useful and numerous profession.—*British Medical Journal*.

OSBORNE'S TONGUE HOLDER.

We commend to the notice of our readers an ingenious tongue holder, that can now be seen at Messrs. Ash & Sons. It consists of a porcelain holder for the tongue, attached to a frame for adjustment to the chin, it is simple in form, excellent in construction, and moreover not *very* uncomfortable for the patient. We believe, however, that the instrument that will perfectly control "the unruly member" is still uninvented.

The Teeth of the Next Generation.

BY OAKLEY COLES, L.D.S. R.C.S.

DENTAL SURGEON TO THE NATIONAL DENTAL HOSPITAL AND THE HOSPITAL
FOR DISEASES OF THE THROAT.*(A Paper read before the Odonto-Chirurgical Society of Scotland).*

MR. PRESIDENT and Gentlemen,—In submitting the accompanying paper to you I am not sure that I am not guilty of gratifying a favourite hobby of my own at your expense of time and patience, rather than contributing to the value of your "Transactions." I was, however, too glad of the chance of having the subject discussed in "the land o'cakes" to miss the opportunity of sending this communication to your Society. I trust that, though valueless in itself as compared with what I should have wished to send you as a contribution, it may still be the cause of discussion that, on account of your geographical position, cannot but be of infinite service in either strengthening or destroying the theory I have to submit to your consideration.

In a paper that I had the honour of reading before the Odontological Society of Great Britain, in June, 1874, I brought under the notice of the profession my observations on "The Condition of the Mouth and Teeth during Pregnancy." I desire now to treat of a subject of an allied character, namely, "The Teeth of the Next Generation."

It seems scarcely sufficient for us to be contented with the efficient treatment only of Dental disease as it occurs. It should rather be our aim to arrive at such knowledge as will enable us to lessen the liability of teeth to decay; in other words, that we should by a reasonable and intelligent course of action give such information and instruction to our patients as will tend towards the development of Dental tissues, more reliable in material, and more perfect in organization, than those that are developed in a vast number of cases in the present day.

The proposition will scarcely be denied that there is an unmistakable deterioration in the form and texture of the teeth of each successive generation; and in those cases where parents, children, and grandchildren have come under our care it is quite easy to observe the gradual departure from the normal development of the teeth and jaws.

Patients constantly ask, "How is it my teeth are so bad,

and decay and break off so readily? I remember my grandfather, when he died at seventy, had not lost a single tooth." Others, again, will tell us that their own parents died at a ripe old age with their dental organs perfect. Arguing, then, from the facts that we have ample opportunity of verifying, we cannot but conclude that the next generation will have much worse teeth than the present generation, and it seems to me scarcely beyond the limits of useful discussion if we consider what steps we can take as a body of Dental practitioners in order to counteract the tide of decadence which seems to manifest itself most markedly in the teeth.

1. We have to notice that a very frequent form of deterioration is what is known as honeycombed teeth. This variety I desire to draw attention to now because it frequently occurs that we have here the best indication as to—where it is—that treatment would be most likely to prove beneficial. For we observe that the portion of the tooth which was earliest calcified is that which has suffered most; and further, that those teeth which were developed earliest suffer more than those which were developed later; thus, for example, we may get honeycombed centrals and laterals and perfect bicuspids. This, it will be at once seen, is a most common occurrence. Then, again, we have teeth perfect in outline, but imperfect in organization. The earthy constituents do not bear a proper relative proportion to the animal constituents, or if they do, they are imperfectly combined, or, yet again, the various parts of which the tooth is made up during the developmental stage may not be united to each other, so that they may form at last a perfect whole. Examples of this latter departure from normal dentition we have in the carious fissures resulting from imperfect fusion of the separate cusps of bicuspids and molars, as well as in those teeth where the enamel first cracks, and then flakes off from the surface of the dentine, leaving that tissue exposed.

2. We find that these conditions are not (at any rate in England) confined to any one class or locality, or at least the boundary lines both of class and locality are not so clearly defined as to be reliable for the purposes of argument. But in Scotland and Ireland the reverse is the case; there we observe those who live in cities and have accepted to the fullest extent the doubtful blessing of high civilisation

are the people who give the most marked symptoms of deterioration of the dental organs; whilst those who live in the country and on the coasts of Ireland and Scotland have as a rule well-developed jaws and perfect teeth. The care they take of their teeth does not enter into the case as a factor of sufficient value to be worth considering (though it might apply to some of the orientals).

3. We observe too that simplicity of diet in the north of Scotland, and in most parts of Ireland (except in cities), is the rule and not the exception, and moreover that in Scotland especially, oatmeal in some form or other enters very largely into the diet of the masses of the people, and so strongly marked is the influence exercised upon the bones and teeth of those who eat oatmeal, that in various isolated districts and families in England its effects can be clearly recognised.

4. (a) It thus seems that we have a certain article of diet—or perhaps it would be wiser to say a certain form of a class of food—that when taken for one or two generations is found in its influence to be associated with well-developed teeth and bones. (b) That where it is not used we have inferior teeth and bones, and greater liability to caries. (c) That the use of oatmeal and other whole meal is beneficial, even in individual cases when adopted in early life, independently of either locality or nationality.

5. Having thus endeavoured to establish the fact of the influence of whole-meal diet upon the dental tissues, both by positive and negative evidence—evidence, moreover, which is capable of most ample proof or denial if it be inaccurate—it only remains for me to point out the measures that I think should be adopted with a view to improving “the teeth of the next generation.” The benefit to be derived from the use of whole meal after birth is comparatively small, since those teeth that are ready for eruption are in an advanced stage of development, and calcification has proceeded to a great extent with the rest, and although we may recognise the influence of the circulation upon every part of the organism, it is not clear that in the case of the Dental tissues we can hope to at all perfectly build up structures of such a dense character, that have been in the first instance imperfectly developed. We are, therefore, by force of circumstances compelled to rest our hopes upon a dietary treatment to be adopted by the mother during

child-bearing ; and I cannot but think we shall be wanting in our duty to our patients if we fail, to point out either directly or through our medical friends the importance of ordering such diet during pregnancy as shall supply the mother with the necessary earthy salts for the osseous system of her offspring. The use of whole-meal bread instead of flour, deprived as flour is of so many of its valuable ingredients, offers a simple way of accomplishing the end in view ; whilst oat cakes and oatmeal porridge offers an alternative diet for those who prefer the meal in the latter forms. We might thus, I think, do more "to prevent decay of the teeth" than we can ever hope to accomplish by any of the prophylactic measures that can only be adopted after birth.

Wimpole Street, Cavendish Square.

Are we justified in leaving Dead Teeth in the Mouths of Children ?

BY MORDAUNT STEVENS, M.R.C.S.E., L.D.S., D.D.S., &c.,
Rue de Luxembourg, Paris.

I HAVE never seen this subject discussed to my satisfaction in any of the works devoted to dental literature. It is true that most of us have been taught by our pastors and masters, that to allow a child to keep in its mouth a pulpless six year old, is little less than a crime, however well the tooth and root may be treated and filled, and that to spare the forceps is to spoil the child; but then we do not always hearken as we should unto the words of the ancients, and I therefore trust I may be excused if I endeavour to re-open a discussion on this point, and thus discover whether this tacitly acknowledged law should be, yes or no, as binding as those of the Medes and Persians. However, before I venture further on the discussion of this theme, I will beg the readers of the journal to remember that I do not come forward as an enthusiastic advocate of the more conservative theory; I only wish to prove that under some circumstances, it is justifiable and prudent practice to leave pulpless teeth in the mouths of young people.

I do not pretend to solve the great problem which con-

sists in drawing the line and deciding clearly which teeth are to be retained and which are to be extracted: although I have studied the subject closely for years past, and have had many opportunities of doing so (being attached to several of the leading convents and schools in this city), I am very far from having come to a settled opinion on this most interesting question.

Children are now brought to the dentist at a very early age, often before they are two years old. The family physician and the parents themselves are beginning to appreciate the services which the milk teeth render, and the time is long past when filling decayed deciduous teeth was looked upon as an unnecessary and uncalled for operation. Why should we not push the conservative principles further, and treat and fill the milk teeth, the nerve of which has died? I have performed this operation often with success, cleaning out the pulp canals carefully, filling them with cotton and creasote, and stopping the cavity in the usual manner. Many of the readers of this journal have doubtless done the same, and it would be most interesting to hear from them what results they have obtained. Let us now consider the second teeth of children under fifteen. There are several very important reasons why these teeth should be removed when the pulp chamber has been invaded by disease:—

1stly. A pulpless tooth, possessing but little vitality, has less chance of resisting the acids of the mouth and other deleterious influences.

2ndly. If we remove a second tooth for a child under fifteen, the other teeth close up, and the removal of the decayed organ does not cause a gap.

3rdly. The extraction of a tooth sometimes relieves the crowded state of the mouth.

4thly. Pulpless teeth, however skilfully filled, have a certain lack of brilliancy, a "dead" look, which sometimes makes them unsightly.

5thly. The treatment of a dead tooth and its subsequent filling is a necessarily tedious and expensive operation, and this also has some weight in the minds of parents.

6thly. Many of the roots of these teeth are not at that age completely formed, the apical foramen is large and patentous, and there is a danger of forcing through it into the alveolus, pieces of gold foil or any other substance we may use for filling the roots.

Having carefully considered these and the many other objections which may be urged against filling dead teeth for young people, I still think that in many instances we do wisely and justly in resorting to this mode of treatment. Take the upper centrals as an instance. I think it far preferable for a child to have a pulpless front tooth, than for it to lose that organ and have the remaining central and the lateral adjoining it brought together, a most unsightly result; and yet the system is advocated by many dentists of the present day.* Nay! even more if the crown be so decayed that there is no hope of saving it, I think it good practice to fill the root, and reserve it for pivoting.† The same argument may be urged in favour of saving the upper laterals. I dare not plead for the lower central and lateral incisors, when they are in this condition; for when one of these teeth is removed, the others may be made to close up in such a way that the lost member is not missed. Few would be found to advocate the removal of pulpless upper and lower canines, the extraction of one of these teeth involving the loss of a great deal of the symmetry of the face, so let us at once pass on to the bicuspids and molars.* I know that some authorities maintain that the extraction of one of these teeth is a positive advantage to the mouth, relieving the crowded state of the teeth, etc. I may answer to this that the crowded state of the teeth is often caused by a contracted arch; why not expand that by mechanical means, and not make the poor pulpless teeth suffer when they are not in fault. Let us bear in mind, that in many instances a pulpless six year old turns out a more serviceable tooth than the *dens sapientiae*. I have daily proofs of the truth of this assertion of mine, and may cite an instance which came under my observation yesterday:—

Some years ago, a boy was brought to me, a little “*enfant gate*”—a lad who when his lessons were over would prefer

* An American lady, verging on forty, showed me yesterday a left upper central, the pulp of which was destroyed when she was thirteen years old. The tooth is in a perfect state of preservation, and the colour is barely a tinge bluer than that of the other teeth.

† I have a little patient aged twelve, now under treatment. He came to me with the crowns of several of his front teeth broken down by decay quite up to the gum; I am treating the roots and will preserve them for pivoting.

shopping with his mother to any healthy boyish exercise—one of those effeminate bon-bons sucking young worthies, a fair specimen of a class of which my readers may possess a few examples. This boy had a very badly decayed upper molar, a mere shell, the pulp was dead and an abscess existed; he would not hear of extraction so I treated and filled the roots and cavity in the usual way. That boy has now become a man, a “petit crevé” in full bloom; his teeth, owing to his mode of life, having decayed one by one, his mouth is a perfect gold mine. Alone that poor despised six-year old has resisted the attacks of disease, it stands there a trusty servant, ready to do many another good day's work. I could cite several other cases, but for what purpose? my readers have seen countless instances in their own practice. My object in writing this paper is not to give information, but, by raising discussion to receive it. I will only say that when the fate of a poor pulpless tooth is in the balance, if we err at all, let us err on the side of mercy. When we propose extraction as the more rapid method of curing the evil, and our little patient looks up at us and says in an imploring tone “Oh doctor! please don't take out my tooth,” if there be a chance of saving that organ, I think the better and the kinder plan is to please the child and not take out his tooth.*

A Case in Practice.

BY C. J. PEACOCK.

Miss B—, aged fourteen, was brought to me with a superior central incisor all but out, and lip much swollen from a blow with a walking-stick, by her brother during play. The tooth, when pressed into its socket, came down again in a few seconds. Attempts to tie it up were attended with much pain, and failed completely. The following plan was then adopted:—A narrow ring, cut

* One of my patients, a little girl, came to me with a dead upper bicuspid. The child was very little for her age, about eleven, but most anxious to have her tooth saved. I cleaned out the roots, the foramen was so large that I could pass a broach through into the alveolus. I filled the roots with cotton and osteo-plastic, carrying the plegget up to the end of the fang, taking care by measuring not to go further—the cavity was consequently filled and the tooth has always done well since.

from thick rubber tubing, about a quarter of an inch in diameter, was tied in two places to form three loops. The middle loop, to be passed on the tooth, was made so as to form two segments of a circle. The smaller segment was placed at the back of the tooth, for the sake of obtaining greater traction by the side loops which rested on the next teeth in front. The tooth at once passed up, remained in its proper position, and, as soon as the inflammation had subsided, became firm and comfortable. This ready mode will, probably, be applicable for two or more adjoining teeth accidentally extruded or displanted.

Scarborough.

On a Carious Tooth.

BY W. J. BARKAS, M.R.C.S.E., L.R.C.P. Lond.

PART III.

(Continued from page 18.)

CARIOUS ENAMEL.

IN examining into the microscopical appearances of the dental tissues after they have undergone change from the action of chemical or impaired vital forces, one ought to be exceedingly cautious indeed not to allow the ideas of other investigators or preconceived ideas of one's own to influence one's powers of observation. This caution is not at all unnecessary, for I have shewn already in these papers how Mr. Tomes had been carried away by hypotheses originating in his own mind, while examining healthy tissues, to imagine that he saw objects under the microscope that no other microscopist has ever observed, and also characters to which his theories gave a nature opposed to the common-sense opinion of all dental anatomists. In my papers on the "Microscopical Structure of Fossil Teeth" that have appeared in the Review, I have also had frequent occasion to point out similar errors from preconception in the books of Prof. Owen and others. But greater difficulties than mental bias obstruct our investigations into the characters of the dental tissues when altered by caries; first, there is the insuperable obstacle of the fragility of carious enamel which totally prevents our obtaining satisfactory transverse sections of the enamel fibres, it is possible, however, to cut

vertical sections by the exercise of a little care; this obstruction is not so marked in the case of the dentine, it being comparatively easy to make fair cuttings of that tissue when diseased, either transverse or vertical; the second and greatest preventive, is the impossibility of observing the processes of chemical action, we can only note that certain changes are taking or have taken place, but in what manner we can only theorise; the same difficulty holds with regard to the processes of impaired vitality and to the mode of destruction pursued by the parasite *Leptothrix* (?). Taking into account all these, I may almost say, insuperable obstructions to investigation—a certain amount of allowance must be made for the paucity of my observations on the carious changes, still I think I shall be able to place before you most of the visible changes that do occur in the enamel and dentine, and some of them I hope to illustrate, but many of the structural alterations are far beyond my powers of copying, even with the aid of the *Camera lucida*, and these I can only indifferently describe in words. Some of my descriptions may also be considered erroneous by other dental microscopists and pathologists, should such be the case I shall be glad if they would state their opinions in the '*Review*' because it is only by continual publication and discussion that the truth can be elicited concerning disputed facts, and of all subjects the appearances presented by objects when examined under a microscope with very high powers, are probably the most liable to give rise to differences of opinion.

In examining the operations of caries in altering the structure of the enamel, great difficulty is experienced; it is a rather troublesome operation to cut good transparent vertical and transverse sections of healthy enamel, but that is a very easy piece of manipulation compared with the making of similar sections of carious enamel, in fact, it seems impossible to cut a section parallel to the external surface, that is transversely to the fibres in the latter case, and we have only to trust that in taking a vertical section we may be able to transversely divide a few fibres, and that we may find some thus cut if a portion of carious enamel be scraped and the débris examined under the microscope. I have been exceedingly fortunate in obtaining sections during all stages of the decay of this tissue, whether the caries has arisen primarily on the external surface or whether it has

spread from the dentine and affected the enamel secondarily. It matters not in which of these modes the decay takes origin, the changes that the tissue undergoes are the same, the difference being only a difference of situation and not of structure. The first change that is apparent after the commencement of the decay is an alteration in the colour of the portion of the enamel attacked; when observed "en masse," it has lost its semi-transparent glistening appearance and possesses a tint varying from dull opaque white to deep brown and even black, but there is no break in the continuity; if the tissue so affected be examined under the microscope after it has been cut into a transparent section, it will be noticed that it is much more opaque than in health, but that in no case is it white or black, the diseased enamel always presenting shades of brown, probably due, as we shall see presently, to different states of arrangement of the calcareous particles. The opacity, in my opinion, is never the result of the separation of the fibre-walls, as stated by Mr. Tomes. I have examined enamel in which the fibres were widely separated, yet it remained clear and transparent, and apparently just as healthy as enamel in which the fibres were in contact; I have also observed tinted semi-opaque enamel in which the fibres were certainly arranged normally. The opacity is entirely due to some alteration in the arrangement, or in the chemical nature, of the calcareous particles, causing the tissue to present varying degrees of refraction and which we consequently designate as granular. This granular condition is most marked in the fibres, though it is perceptible but to a much less degree in the intertubular tissue when the fibre walls are not blended together. In the fibres themselves there are very clearly differences in the granular state even when they are mutually co-adapted, the parietes not presenting that condition anything like so distinctly as the centre of the tube, except where they are traversed by the *striæ*. The *striæ* are very granular, generally as much so as the internal portion of the fibre, only they are rendered more perceptible by the comparative clearness of the tissue of the fibre-wall. These characters are not strictly diagnostic of caries for they are also to be observed in faultily developed enamel, but the one can generally be distinguished from the other by the fact that when this condition arises from faulty development, the structural

changes do not necessarily proceed further than this stage, the tissue being apparently able to resist the presence of a considerable amount of acid in the buccal secretions, while in commencing caries they are almost certain to progress.

The continued action of the acids of the mouth upon the carious enamel causes the tissue to become uniformly granular, in this manner the striae of the fibres are gradually rendered indistinct, and it is with difficulty the fibres can be distinguished from each other even after the application of dilute Hydrochloric Acid. It may be as well to remark here that it is generally in that variety of granular enamel that presents a light brown colour when viewed by transmitted light and opaque white by reflected light that caries is most active, the darker forms having apparently greater powers of resistance and being probably always the result of defective development and not of the action of acids. Coincident with the uniform granulation of the fibres, disintegration of the tissue is observable, but in what manner the process of breaking up is carried on I cannot perceive very distinctly, my researches, however, tend to the conclusion that it is by the destruction by the buccal acids of the calcareous particles that are situated in the intertubular tissue or that blend the fibres together, at a more rapid rate than those in the parietes of the tubes. My reasons for this conclusion are solely arrived at from the examination of enamel débris and from the theory of the calcification of the enamel that is generally accepted by dental anatomists and finally from the manner of the progress of the decay into the tissue. It will not be necessary for me to enter into any details concerning the theory of the calcification of the enamel, let it suffice that the original state of that tissue consisted of organic cells buried in a blastema, and that when calcification did occur, calcareous salts were deposited in the cells and in the matrix. Such being the theory it is probable that the earthy salts would be united with these two structures in a totally different manner, because the one was vitally organized while the other was merely an excretion; in the cells, therefore, it may be conjectured that the salts would be intimately blended with the organized animal matter, perhaps even the connection might be of a chemical nature, but in the homogeneous blastema, where no vital action could operate, the union would be nothing more than an

intimate admixture. If such were the case, then the acids of the mouth would be enabled to attack the intertubular salts somewhat more readily than those in the parietes of the fibres, and thus we might account for certain appearances that may be noticed in observing the progress of the disease. With regard to the solid calcareous cylinder in the interior of the fibres, it stands to reason that acids will operate upon it without anything to hinder their progress except the compactness of the arrangement of the earthy salts. Having thus prepared the way for watching the advance of the structural changes deeper and deeper into the enamel, by broaching a probable explanation for the facts that I shall now endeavour to describe, we will return to the first stage of the caries. It will be remembered that I have stated that the fibres are the first to become granular, and that this condition affected only the internal column, then as the disease crept on, the intertubular tissue of the part originally diseased became altered, coincident with a greater distinctiveness of the striae, and finally the affected tissue presented an uniformly granular appearance. This is just what we might expect if the acid were applied to the external surface of the enamel; and a continued observation of the disease shews that the same order holds throughout the whole of its course. The rate of advance is necessarily very slow, for as soon as the acid has made its way into these different parts, the degree of progress must be always in exact ratio to the difficulty incurred by the acid to reach the calcareous particles; therefore in examining a good vertical section of carious enamel we may see these three stages at once, one lying external to the other, but the one form gradually verging into the other. This theory of the mode by which caries advances also accounts for the distinctness of the striae at a certain stage of the disease; if the deductions as to the cause of the striations that I stated in my first paper on enamel were correct, then the minute cells or nucleoli would render the fibre walls very thin at those places, consequently the chemical action would extend to them from the interior and exterior of the fibres and fill the hollow spaces with granular matter, while the intervening solid parietes would resist change for a longer period. In the final stage, before disintegration occurs, the fibre walls have become granular and the whole tissue presents an uniform granular aspect, which is not altered by the addition of dilute acid.

The deductions as to the mode of disintegration can only be inferred from a close examination of enamel débris, for now it is impossible to procure sections such as we have been enabled to do up to the present. When much decayed enamel is desired for microscopical examination, it must be scraped from the carious surface, placed upon a slide and the mass of fragments gently separated in water or some other vehicle, but without the application of any undue force, in order that light may be easily transmitted; when this is done the débris will be seen to be composed of numerous fragments of enamel fibres broken into different lengths, small masses of fibres still in conjunction, granular matter and in every case that I have examined an abundant supply of Leptothrix and Bacteria. The granules in the débris are principally the minute germs of the Leptothrix and Bacteria, and the viscid excretions of those parasites, but calcareous particles are also present, at least I infer so, because on adding dilute hydrochloric acid, the granular appearance is lessened, the acid, however, does not disperse the parasitic germs, in fact, if it be not too strong, it renders them more active in their growth. The fragments of enamel fibres lying among the parasitic and calcareous granules vary much in their length, sometimes being merely a flat looking disc, as though the fibre had broken at two adjacent points of striation, in fact, I believe that whenever the fibres do break during the process of disintegration, it is always at one of these points; in other cases they are long enough to include from two to six or even more very indistinct striations; even when two or more fibres are still held together, the length is rarely greater than this. In those fragments, composed of small bundles of fibres, it will be very often noticed that the edges are irregular where the tubes have been divided transversely, but smooth on the other two sides; this irregularity arises from the ends of the fibres projecting beyond the compact mass, and appears to me to be the result of the more rapid action of the acids upon the salts of the intertubular tissue, rather than that of a fracture of an uniformly hard substance. The very fact that portions of single fibres form the bulk of the débris shews that the calcified blastema is first acted upon, for unless the fibres remained fairly permeated by calcareous salts, they would not break in the manner they are observed to do. I am

not of opinion, however, that the separation of the fibres takes place solely as the result of chemical action upon the salts of the intertubular tissue, because in that case the animal substance remaining would act as a binding medium between the fibres, as it does act, in fact, in those cases where bundles of fibres are observed. We have, besides chemical action, the destructive properties of the Leptothrix and Bacteria upon the animal matter. How these parasites destroy the tissue I cannot say, but it is nevertheless a fact that they are present in decaying enamel, and tend to produce its destruction, just as they destroy the dentine. Whether the Leptothrix penetrates into the tissue in order to disintegrate, or merely attacks the external surface, I have not been able to ascertain, on account of its minuteness and the similarity of its refrangibility and that of the enamel.

I hope to treat more fully of my researches into the characters and modes of development of these parasites after I have drawn attention to the changes in the dentine.

The Surgery of the Mouth.

BY FRANCIS MASON, F.R.C.S.

SENIOR ASSISTANT-SURGEON AND LECTURER ON ANATOMY AT ST. THOMAS'S HOSPITAL.

(Continued from Vol. 4, p. 24.)

DISEASES OF THE BONES OF THE FACE.—(Continued.)

VIII.—CARIES AND NECROSIS (continued.)

Phosphorus necrosis.—There are few surgical diseases that have attracted more attention, within the last thirty years, than necrosis of the jaws and other bones induced by the fumes of phosphorus. The disease was not suspected until the manufacture of lucifers had become a somewhat extensive branch of industry. In this country little attention was paid to the matter until the appearance of Dr. Wilks' paper in the "Guy's Hospital Reports" for 1847. A little later (in 1850), Mr. Simon delivered a clinical lecture at St. Thomas' Hospital on phosphorus necrosis, because, as he remarked, "the disease has not yet passed into the text book of surgery."*

It is worthy of note, that the makers of phosphorus itself

* *Lancet*, vol. 1, 1850, p. 41.

appear to be exempt from the disease; the special victims are the makers of lucifer matches of a particular quality. The affection differs from the necrosis brought about by the other causes already referred to, chiefly in respect of its severity. It commences in the periosteum, which becomes either acutely or chronically inflamed. The mischief may be limited to either the upper or the lower jaw, or it may extend to other bones of the face, or even to those of the skull. The sufferer's health may, in the first instance, be fairly good, but the disease is nevertheless a serious malady—indeed, it often terminates fatally, the patient either dying of sheer starvation, or becoming day by day worn out by exhaustion consequent on suppuration.

The disease was first observed, scientifically, in 1839, in Germany, a country famous for the manufacture of lucifers. It was especially common in Nuremberg, this being the great centre where alone lucifer matches were allowed by government to be manufactured, and, according to Billroth, at one time, extremely prevalent in Zurich.* We are principally indebted for our knowledge of the subject to Lorinser,† Roussel, and Gendrin, Strohl, Bibra, Geist, Sedillot, Trélat, Hervieux,‡ Verneuil,§ and Heyfelder; and amongst our own countrymen may be mentioned Drs. Wilks|| and Bristowe (the views of the latter being embodied in a report to the Privy Council, 1853, "On the manufactories in which phosphorus is produced or employed"), Sir James Paget, Mr. Simon, Mr. Salter, Mr. John Adams, Mr. Savory, Mr. Thomas Smith, and others. The disease seems to depend on the direct action of the fumes of phosphorus on the teeth, which must be in a state of decay, or on the jaw, the bone of which has got by some accident exposed. It was thought at one time, by M. Dupasquier and Dr. Martin, that it depended upon some impurity mixed with the phosphorus. These investigators analysed a sample of the phosphorus used in the manufacture of lucifer matches, and detected the presence of arsenic, they therefore attributed all the mischief to this agent rather than to the phosphorus itself. There is, how-

* *Medical Times and Gazette*, June 8, 1861, p. 610.

† "Necrose des os maxillaires consecutive à l'action des vapeurs phosphorées." Vienne, 1845.

‡ "Union Medicale," 1848.

§ "Bulletin de la Société de Chir.

|| "Guy's Hospital Reports," 1847.

ever, no doubt that arsenic does have a peculiar and somewhat similar effect on the bones. Thus Stanley* refers to specimens in the museum of St. Bartholomew's Hospital, of "bones from cows obtained at Swansea, in the neighbourhood of which there were copper works, where, in melting the copper ore, arsenical fumes are disengaged to such an extent as to destroy all animal and vegetable life within their influence. The animals, soon after their exposure to these fumes, become ill and disabled from diseases in these bones, which, on examination, are found enlarged, and covered by deposits of unhealthy osseous substance. Here, therefore, it would appear that in animals the arsenic had excited inflammation of the periosteum and bones of a somewhat similar character to the disease which occurs in the jaws of persons occupied in the manufacture of lucifer matches." Strohl upheld the theory that the disease was due to the action of phosphorus alone, and that it was primarily local. Lorinser, on the other hand, averred that the constitution was first poisoned by the vapour of the phosphorus, and that the jaw or jaws suffered secondarily. The latter theory is rather confirmed by the researches and experiments of M. Degner in 1872. Referring to these, MM. Follin and Duplay speak in the following manner:—

"Having had occasion to perform amputation of the thigh on an individual who had worked in a match factory, M. Degner† was struck, on the one hand, by the thickness and the firm adhesion of the periosteum, and on the other, by the rapidity of the necrosis and the osteomyelitis that followed. Experiments made upon rabbits, cats, and dogs, enabled him to prove—1st. That the prolonged administration of phosphorus, in the form of a pill, produced a chronic poisoning characterized by an alteration in the blood, due to the presence of phosphorus, and which acted in a special manner on the bone-forming tissues, in determining the thickness of the periosteum, the increased formation of the compact tissue, and the diminution of the medullary spaces.

2nd. That the local action of phosphorus on the exposed periosteum caused periostitis. Thus it seems demonstrated that the vapours act not only locally on the bones, but

* "Diseases of Bones," p. 76.

† "Arch. f. Path. An. u. Phys. f. Klin. Med.," 1872. "Gaz. Hebdo," Nov., 1872.

that phosphorus necrosis may be the result of a general poisoning, quite independent of local irritation.* Mr. Salter† believes that it is the poisoning of the tooth pulp that is the essence of the disease. He says that "to bring about phosphorus disease, phosphorus in some form must be applied to the periosteum or, what is equivalent to the periosteum, to some raw vascular surface in immediate connection with the nutrition of bone; and the application must be prolonged, and must be under particular circumstances of temperature, and probably of oxidation." The experiments of Ernest von Bibra on rabbits and other animals, prove, almost conclusively, that the disease cannot be produced unless the jaw is denuded of periosteum.‡ M. Trelat, however, is of opinion that dental caries is not necessary, but that it is only a predisposing condition.§ That carious teeth have some influence is evident, from the fact that the mucous membrane of the eye and nose appear to escape. With regard to the immunity of other organs, Mr. Simon remarks—"Phosphorus necrosis only attacks persons with carious teeth, and it operates in the buccal, rather than in the nasal cavities, because it is only in the former that the phosphoric vapour is enabled by carious teeth and ulcerated gums to come into direct contact with the periosteum, on which its irritating influence is subsequently exerted." French authors, however, explain this fact by the anatomical condition of the gums in the absence of glands and epithelium which protect other mucous membranes. These observers attach some importance, too, to the predisposition of the interdental spaces to accumulate different substances introduced into the mouth. The lower jaw is, no doubt, much more frequently affected than the upper, but on this point there is some difference of opinion; it is certainly unusual to see the disease in both jaws at once. Of 51 cases observed by Von Bibra, both were affected in five instances; the upper alone in 21; the lower in 25. Dr. Bristowe thinks the lower jaw is more frequently attacked, and Mr. Salter gives as a cogent reason

* "Traité Élémentaire de Pathologie Externe," tome 4ieme.

† "Dental Pathology and Surgery," p. 283.

‡ "Die Krankheiten der Arbeiter in den Phosphorzundholzfabriken-insbesondere das Leiden der Kieferknochen durch Phosphordämpfe." Ernest von Bibra und Lor. Geist. Erlangen, 1847.

§ "De la nécrose produite par le phosphore." 1857.

for this frequency, that the lower teeth and inferior maxilla are far more exposed than the upper jaw to the influence of the phosphorus oxide dissolved in the saliva, and adds "in evidence, observe the accumulation of salivary calculus on the lower teeth."* Of eleven cases that were under Professor Billroth's observation, nine were of the lower, and two of the upper jaw.† It has also been remarked that abortion is frequent in pregnant women employed in factories of lucifer matches.‡ M. Ebel referred the disease to rheumatism, and, in many of the cases the patient believes when he is first attacked that he is suffering from that disease, and he is led more irresistibly into this belief by the fact that his symptoms are usually aggravated in wet or damp weather.

In considering the subject of phosphorus necrosis, it seems a matter of surprise that so little has been said by various writers as to the peculiar idiosyncrasy likely to induce the disease. It appears to me that there must be some cause of a constitutional nature to account for the singular fact that whilst so many hundreds of work people are employed in the manufacture of lucifer matches, there should be so few cases of phosphorus necrosis. If the disease depended entirely on decayed teeth, the disease should be the rule rather than the exception. It is indisputably a rare disease in London, for according to the St. Thomas' Hospital reports, there has been no case of the kind for five years at least. My personal experience, too, is not great; thus, during about twenty years, I have met with only three cases (all of the lower jaw) in which the symptoms were unmistakeably marked. One of these was under my care when I was surgeon to the St. Pancras Dispensary. The patient was a man aged 48, who had had phosphorus necrosis of the lower jaw for five or six years. He had been in several metropolitan hospitals, in one of which an unsuccessful attempt was made to remove the sequestrum; he obstinately declined all surgical interference, although the necrosed bone seemed loose. He died, at length, of tubercular disease of the lungs.

As to the liability of the different bones to be attacked

* "Op. cit.," p. 294.

† *Medical Times and Gazette*, June 8, 1861, p. 610.

‡ *Lancet*, Jan. 25, 1862, p. 98.

with phosphorus necrosis, MM. Follin and Duplay give the following as the order of frequency:—

1. Lower jaw.
2. Upper jaw.
3. Malar bones.
4. Palate bones.
5. Turbinated bones.
6. Vomer.
7. Ethmoid.
8. Frontal.
9. Sphenoid.
10. Temporal.
11. Occipital.

The *etiology* of this disease is full of interest, and there are some remarkable examples recorded, showing the manner in which it originates. Thus Sir James Paget alludes to a case of phosphorus necrosis, brought on by the patient inhaling the vapour of phosphorus to cure nervousness.* Mr. Waren Tay exhibited at the Pathological Society on December 2nd, 1873, a boy aged four, from whom he had removed the greater portion of the lower jaw including the left condyle. The disease was thought to have been originated by the boy sucking lucifer matches.† And Mr. Salter‡ quotes Plaskal, who mentions the case of a child aged seven, who was in the constant habit of playing with matches, standing before a wall and discharging them in the dark for amusement, so that her face was bathed in the fumes. She was attacked with necrosis and exfoliation of small portions of the front of the lower jaw, with the ordinary attendant symptoms. Mr. Heath too, alludes to a case reported by Grandidier, of "necrosis of the upper jaw from the fumes of phosphorus, in a child six weeks old and in whom therefore the teeth were not developed."§ Again, Mr. Simon, in his lecture already referred to, could in one of his cases find no other cause for the disease than that the patient was in the habit of sucking a piece of ginger "to warm his chest." He was in the habit of placing the ginger when not in use in his waistcoat pocket, in which there were some lucifer matches. There is no doubt that

* *Medical Times and Gazette*, vol. i. 1864.

† "Path. Tr." 1874, p. 206, with woodcut.

‡ "Op. Cit." p. 288.

§ "Op. Cit." p. 116.

the old-fashioned method of making matches by the so called "bundle dipping" process is fraught with the greatest amount of danger, but the mere handling them is sufficient to cause the disease, as in Sir James Paget's case, in which the patient "piled them" only.*

The *symptoms* of necrosis from phosphorus come on at a variable time from the first exposure to the vapour. Dr. Balfour believes that it is necessary that a number of years should elapse, for, as he truly remarks, the first case was observed in 1839, eleven years after the manufactories had been at work.† The severity of the symptoms vary too in accordance with the extent of bone surface involved. Starting as an acute form of periostitis, the body of the lower jaw is the part principally implicated. Mr. Simon explains this by saying that "as inflammatory effusion in the belly gravitates to the pelvis, so about the jaw we find that this infiltration settles down towards the base." It will be remembered that in exanthematous necrosis, the alveolar border was the part principally involved, and that a comparatively small portion might come away as a sequestrum. It is said to be an exceptional circumstance for a part of the jaw to be affected in phosphorus necrosis,‡ which indicates the extent and virulence of the inflammatory mischief. Dr. Heyfelder, however, found that in most of the cases one half of the jaw was implicated.

There is an enormous amount of swelling of a peculiar puffy character, which we do not notice in any other form of necrosis of the jaw bones. This is said to arise from the poisonous infiltration of the tissues themselves, and the swelling lasts for years after the dead bone has been removed, and at best there is in many cases great disfigurement. The disease often commences with slight uneasiness in the jaw, and some toothache, after which the gums and inside of the cheeks become much swollen, spongy, and in some cases ulcerated, resembling the condition produced by salivation from the abuse of mercury; moreover there is a greatly increased flow of saliva, and the patient's breath becomes intolerably fetid.

The skin of the face will in one example be tense and

* *Lancet*, Jan. 25th, 1862, p. 98.

† *Northern American Journal*.—*Lancet*, 1846, vol. 2, p. 248.

‡ "Tomes' Dental Surgery," Ed. 2, p. 502.

red whilst in another it will be tumid, pale and shining, having a greasy dirty yellow colour. The lips participate in the swelling being prominent and pouting. The teeth at length become more or less loose, and after rigors of considerable and varying severity, there will probably be profuse suppuration from the alveoli, either into the mouth, or bursting through the skin of the face in several places, leaving a chain of ulcerated openings, and if the lower jaw be the part involved, extending in the line of that bone from one ear to the other. Should the upper jaw be the bone implicated, the nostrils may be so encroached on as to interfere with breathing. This was a marked symptom in a case under the care of the late Mr. Wormald.* The displacement of the teeth, inasmuch as they are raised beyond their natural level, gives rise to great discomfort. Some patients suffer intensely from want of sleep, as in a case under the care of Mr. Curling, in which the man said he had not slept for one whole hour together since the commencement of the attack (i.e., about nine years).†

Besides obstinate diarrhoea and griping pains, Langenbeck observed that there were cardialgia, loss of appetite, and eructation of gases which had a smell of phosphorus. There were also dizziness, faintness, and a cachectic appearance. The teeth, he adds, are mostly normal—a fact opposed to the generally received opinion that the disease commences in carious teeth. The pain is followed by suppuration of the gums and loosening of the teeth. Langenbeck objects to the term necrosis. The condition found in such cases is periostitis, and bony deposit takes place to a greater or less extent, sometimes enclosing the jaw as in a sheath. There is no exfoliation, and surgical operation is necessary for the removal of the jaw.‡ Dr. Dupasquier observed that the gases which the workmen expelled from the stomach in the dark of night became luminous, appearing as if they breathed flames from the mouth. He made a chemical examination of the vapour that poisoned the atmosphere, and found that it consisted principally of hypophosphoric acid, probably

* *Lancet*, vol. i, 1862, p. 98.

† "Path. Soc. Trans." vol. xx., 1869, p. 281.

‡ "Berliner Klin. Wochenschr," Jan. 8th, 1872. *Brit. Med. J.*, Feb. 3rd, 1872, p. 128.

mixed with small quantities of phosphuretted hydrogen, and possibly the phosphorus itself in the form of vapour.*

The pus that is discharged is said by Geist and Bibra to contain a large proportion of phosphoric acid. In the more severe forms there is great constitutional fever, and death may supervene after exhaustion and muttering delirium, or the patient may eventually succumb to albuminuria or to fatty degeneration of the liver, or to tubercular disease.

Pathology.—The disease as already stated differs but little from necrosis, induced by other causes. There are, however, one or two points to which brief reference may be made. As a rule the necrosed bone is a very long time before it becomes detached, and usually requires the aid of the surgeon. Again there is a grey pumice-stone osseous substance (*osteophytes phosphoriques* of the French) deposited from the inflamed periosteum, which is said to be peculiar to phosphorus necrosis. There is however, no doubt that this osseous substance is met with in other varieties of necrosis, but is seldom if ever found when the upper jaw is the part involved.

Dr. L. Geist attributed the increase of the earthy material in the lower jaw to gravitation only.†

Lastly, it has the peculiarity of extending to other bones; thus Mr. Salter refers to a case in the practice of Dr. Hervieux, in which "the patient, a lucifer match maker, had first necrosis of the lower jaw, then of the upper, afterwards of the palate bones and the orbits, and lastly of the os frontis. He died of brain symptoms, pus being found between the dura mater and the brain."‡ And M. Jagu quotes an instance in which a woman died of suppuration in the sinuses at the base of the cranium. All the bones in this region were necrosed, black, and bathed in pus.§

With regard to the regeneration of bone, Stanley remarks, "Whichever may be the mode of production of the disease, its effects upon the jaw are certain in destroying a portion of it, and under such circumstances that no reproduction of

* *Dictionnaire d'Hygiène Publique*, par Ambrose Tardieu, Tome i, p. 76, *Lancet*, July 11th, 1857, p. 32.

† *Die Regeneration des Unterkiefers nach totaler Necrose durch phosphor dampfe*. Erlangen. 1852.

‡ "Dental Pathology," p. 293.

§ "Contribution à l'étude de la necrose de cause phosphorée, 1874."

the bone will ensue."* But there are examples in which after the sequestrum has been removed, the bone has been to a great extent reproduced, or failing reproduction that an excellent substitute is formed. Mr. Tay's case already referred to is a good case in point. In this the whole of the lower jaw except the condyle and coronoid process of the right side exfoliated, and a new formation of bone replaced the old one, and admitted of free motion.

A unique case of phosphorus necrosis was related by Mr. Savory, at the Medical Chirurgical Society. The subject was a lad aged eighteen, who had been exposed for a long time to the fumes of phosphorus. In this case there was considerable reproduction of bone. The boy died, and at the post-mortem examination the following bones were found denuded of periosteum and dead:—On the right side, the whole of the upper maxilla with the central incisor; the malar, the external and internal processes of the frontal, and the part in contact with the lachrymal and nasal bones; the lachrymal and nasal bones except at base; all the internal pterygoid plate and the front part of the external pterygoid plate of the sphenoid and a narrow strip of the orbital plate of the greater wing adjacent to the malar; all the palate bone; the inferior spongy bone, and the back part of the middle one and the os planum of the ethmoid.

On the left side, the whole of the upper maxilla, especially at the back part, with all the teeth; all that part of the malar bone adjacent to the upper maxilla; the palate bone excepting its orbital process; the inferior spongy bone; the lachrymal and nasal; the os planum of the ethmoid, and nearly all the vomer.† The woodcuts accompanying the paper show admirably the trough-like appearance usually observed in these cases. Mr. Thomas Smith, too, had under his observation an extremely interesting and instructive example. It was a case in which "the whole of the lower jaw was removed at one operation, and in which there was true bony reproduction of the same." With regard to the regeneration of bone in this instance, Mr. Smith adds his belief that it did not take place from the osseous surface of the periosteum, but rather from the fibrous structure of the gums in front of the original jaw.

* "Op. Cit." p. 75.

† "Med. Chi. Soc. Trans." 1874, p. 189.

Mr. Smith refers also to another important practical point, and it is the retraction of the tongue after the removal of the necrosed bone. The patient could not lie flat on his back, he said "he should choke if he lay down." The patient died of suffocation six weeks after the operation. The explanation that Mr. Smith gives of the dyspnoea is, first, that the relations of the tongue are somewhat altered, and that this organ is placed lower down and nearer to the hyoid bone, and also to the upper opening of the larynx.*

Odontomes.

(*TRAITÉ DES TUMEURS. PAR PAUL BROCA.*)

(Continued from page 83.)

HETEROTOPICAL ODONTOMES.

UNDER this name I designate those odontomes developed in the supernumerary dental follicles. These sometimes occupy the maxillary region, and sometimes a region more or less removed from the jaws. In both cases they are due to the work of heterotrophy; for that which constitutes heterotrophy is not the distance greater or less which separates the tissue or nerve organ of those similar parts which enter into the normal economy; it is the absence of continuity between the accidental production and the normal parts whose structure it reproduces. A supernumerary tooth which is developed in the jaws some millimeters from the other teeth is equally heterotopical as that which arises in the temporal bone, nevertheless, the digression in formation is more considerable in the second case than in the first.

In the human subject the supernumerary teeth (which must not be confounded with the dental cysts called fochal) are scarcely ever developed, except in the jaws; I might even say that they are never developed elsewhere, if I confine myself to facts that are known to me. But in the herbivorous animals, it is only extremely rarely that they are met with in other parts of the head; besides, they are generally in close connection with the skull in which they are sometimes solidly implanted. Their almost constant

* "St. Bartholomew's Hospital Report," vol. i. 1865, p. 101.

seat is in the region of the temporal bone, and the adjacent parts of the parietal, occipital, or sphenoid. It is seen, nevertheless, that it does not adhere to the skull, but to the scutiform cartilage, which forms part of the base of the shell of the ear. These odontomes are generally solitary, though there were two perfectly symmetrical in the horse, the account of which was published by M. M. Robin and Geanges Félix. In this case there was another isolated and remarkable circumstance; it was that the osseous production, in which the right supernumerary tooth was implanted, enclosed in its thickness two other small dental masses entirely enclosed in the osseous tissue, and without any communication with the large tooth. In reality, then, there were on that side three supernumerary dental follicles in an osseous mass, which represented a small jaw.*

Supernumerary teeth in man, even when occupying the region of the jaw, generally make their eruption, and sometimes without any accident. But the temporary, or peri-temporary tooth of the herbivora, cannot behave in the same way; in raising the soft parts they form a tumour more or less voluminous, which still more increases the inflammatory induration of the adjacent tissues. The more they enlarge the more the tension and inflammation augments; finally, an abscess is formed and a fistula remains.

These supernumerary teeth in the herbivora may have an almost normal conformation. In the case of M. M. Robin and Félix, the principal tooth on the right side had the appearance of a molar, but the structure of an incisor. A fang was found still in the course of growing, and a crown provided, with a dental cornu, full of cementum, and with a central and a framing enamel. The animal was a horse of eighteen months. In the case of Mage-Grouille, an abscess being formed in a mare of three years and-a-half, between the left ear and the hollow, an incision was made, which laid bare a molar tooth solidly implanted in the bone. This tooth was extracted; it was six centimeters long, and nine in circumference; the enamel, the crown, and the canaliculi could be perfectly distinguished.† In a case cited by

* Robin et Georges. *Comptes rendus de la Soc. de biolog.*, 1863, p. 167, ser. iii., t. v.

† Fromage de Fengré. *Correspondence sur les animaux domestiques*, 1811, t. iv. p. 267.

Berger-Perrière he discovered in a lamb, an abscess which opened into the right ear and remained fistulous. Across this opening a decayed incisor tooth was extracted perfectly formed.*

We see that supernumerary teeth may be developed in an almost regular manner, and show almost exactly the form of such and such a normal tooth. But their follicles have a marked tendency to undergo an hypertrophied development, and to produce, instead of well-formed teeth, true odontomes, which I describe as heterotopical odontomes. I have reason to believe that this evolution is very rare in man, for I do not know of a single example, although irregular teeth are not extremely rare; but the extra maxillary dental follicles of the herbivora, if I can recall the published accounts, more often produce odontomes than normal teeth.

The case observed in the human subject has been published by Mr. James Salter in a work from which I have already quoted.† In a gentleman thirty-five years of age, who experienced extreme pain at the angle of the jaw on the right side, Mr. Salter found *behind the wisdom tooth* a small irregular mass of bony appearance, which pierced the gum. He easily removed it, thinking to extract a sequestrum; but it was a small dental mass, almost round, on which neither crown nor fang could be distinguished, and whose superficial surface was covered with a great number of small vegetations, very irregular and very unequal in volume, a kind of papillæ, more or less digitiform, perfectly white and covered with enamel. Mr. Salter considered this case to be that of a *warty tooth*, without distinguishing it from those that I have described under the name of *partial coronary odontomes*. But the absence of all crown, or part of a crown, proves that in reality a dentified odontoplastic odontome developed in a supernumerary follicle. What is more curious is that some time afterwards a second dental mass exactly like the preceding one appeared across the gum, and took the place of the first; it was a second supernumerary follicle developed into an odontoplastic odontome, like the first. These two tumours, the second cer-

* Berger Perrière. *Recueil de mid veterinaire*, 1835, t. xii. p. 586.

† J. Salter, "Contribution to Dental Pathology in Guy's Hospital Reports." Vol. iv., 1858, p. 279, pl. 1, fig. 3-4.

tainly, and probably also the first were developed a long time after the eruption of the wisdom tooth, that is to say, a long time after the limit that we have assigned to the *début* of the latest odontomes. But this limit is evidently applicable to odontomes of normal follicles, whereas supernumerary follicles may be formed in adults. Now it is not astonishing that dental germs appearing thus as after-growths have a less active evolution than the others, and that the odontomes of which they become the seat may be restricted to a very small size. It is thus doubtless that the two odontomes observed by Mr. Salter, were smaller than the smallest molar tooth, whilst the odontoplastic odontomes of normal follicles are always much more voluminous than the teeth whose place they take.

Odontomes of supernumerary follicles of the temporal region of herbivora may on the contrary acquire a considerable volume. Their resolution and their anatomical character do not essentially differ from those of maxillary odontomes. Nevertheless they appear during the coronal period, and these are clothed more or less for a variable part of their extent with the form of an imitation tooth; at another time they appear before the formation of the crown, during the odontoplastic period; and these constitute after dentification informal masses, where the enamel, cementum and dentine are scattered in an irregular manner in the same way as odontoplastic odontomes in the same animals.

As an example of a coronal hétérotopical odontome, I shall cite a case of M. Martin's. This veterinary surgeon established in a she-colt the existence of a tumour the size of a turkey's egg, which occupied the left temporal region at an equal distance from the eye and ear, and whose existence had lasted fifteen months. A fistula, which opened into the ear, was cut into, and M. Martin discovered an osseous mass strongly adhering to the parietal bone, which he extracted with forceps (farrier's pincers). This singular tumour which showed some resemblance to a molar tooth, presented on its surface three holes, which at the time of the operation enclosed gelatinous matter. M. Martin diagnosed a tumour produced by ossification of the scutiform cartilage of the ear. M. Reynal, analysing the specimen, contested this diagnosis, and thought rightly that it was a molar tooth developed in the thickness of the parietal bone. It is evident that this tooth had become

singularly monstrous, as M. Martin took it for an osseous production. Comparing the two diagnoses, I believe that the tumour whose volume greatly exceeded that of the largest molar, was a coronal odontome developed in a supernumerary follicle.* M. Goubaux cites briefly an analogous fact observed by Mr. Gurlt, of Berlin.†

The adherence of the odontome to the parietal bone was considerable in Mr Martin's case; it was, however, still greater in a case observed in 1848 by M. Goubaux, and published by him in 1854 in his important volume on the "Aberrations dentaires des animaux domestiques." In opening the skull of a horse, M. Goubaux found on the left side, in the thickness of the posterior part of the sphenoid, and at the level of the occipito temporal suture, two strange tumours, which are placed in the museum at Alfort. The first, irregularly cylindrical, 36 millimeters thick, 51 long, made a large elevation in the interior of the skull; the second was spheroidal, 45 millimeters in diameter, made, on the contrary, an outward elevation, raising a thin, bony, papyraceous covering which separated it from the pericranium. A section made with great difficulty from this last tumour, showed that it was composed of a mass of dentine, in the midst of which bands of enamel appeared. A slice detached for microscopical observation, and studied by Goubaux with the assistance of MM. Mandl and Oudet, established indisputably the existence of enamel and dentine. This is sufficient for us to affirm that it was an odontome, but M. Goubaux having only made a partial section, and thus only studying a detached segment taken from the most exterior part of the tumour, the description of the lesion remained incomplete, and I cannot sufficiently thank M. Nicolet, keeper of the Alfort museum, who allowed me, with the consent of Professors Goubaux and Boulay, to make a complete study of this odontome, and to make a section together which divided at the same time the two principal tumours. I thus became aware that in the region comprised between the sphenoid and occipital bone, there existed not two, but four distinct tumours, contiguous to each other at certain points, and separated at other places by osseous papyraceous lamellæ, which emanated from the

* See case analysed by M. Reynal in *Recueil de Médecine Vétérinaire*, Mai, 1853, p. 366.

† Gurlt, *ibid.* 1854, p. 76.

bones of the cranium, and which formed round them incomplete osseous cysts. Two among them showed slight mobility; three of them were composed of enamel, dentine, and cementum, the existence of which I established by microscopical sections, and which, besides, might be recognised with the naked eye upon the surface of the sections. The fourth was exclusively composed of cementum at the level of the section, but it is probable that in other parts it enclosed other dental tissues. However this might be, it appeared to me that this complicated lesion was constituted by the union of four odontomes developed in four supernumerary odontomes. These heterotopical odontomes contain the three dental tissues, but nowhere the form of crowns, and must be consequently ranged as odontoplastic odontomes. As to the multiplicity of supernumerary follicles which are simultaneously the seat of the work of dental hypergenesis, there is nothing to surprise us, as we have seen, in the case of MM. Robin and Félixet, three of these follicles very close to each other, and indisputable from the fact of the likeness of the three teeth which they produced.

Dentistry Abroad.

By WM. C. EASTLACKE, D.D.S., BERLIN, PRUSSIA.

It is utterly impossible for the dentists at home to realise the difficulties attending the *conscientious* practice of dentistry abroad. Having twice circumnavigated the globe in the interests of our profession, despite the prejudices of intelligent men and women, as well as members of the medical profession, which we have encountered, it has always been our effort to exalt the standard of dental surgery, until it might have an artist's fame and reward. In our intercourse with patients from many parts of Asia and Africa, the Pacific Islands and all parts of Europe, we have encountered so many obstinate prejudices to dentistry, as a science, that a few remarks upon this subject will, perhaps, be interesting and valuable to the professional brethren at home. A brief reference to this subject was made before the American Dental Association at Put-in-bay; also at the Dental Convention at Saratoga, the summer of 1873, on the return route from China; but time did not permit the necessary preparation for a full discussion.

Fifteen years ago it was our destiny to open an office in Hong Kong, Victoria Islands, once a Chinese possession, but at the time of our arrival a flourishing English colony, and one of the finest sea-ports in the world. It was here, fresh from home enthusiasm and appreciation of

our profession, that we were compelled to encounter the almost overwhelming prejudices of Englishmen and the representatives of other European nationalities. We were made to realize the fact, that dentistry as a science, dentistry as the result of a collegiate course of study, was something incomprehensible and rather ridiculous ; an accomplished blacksmith or barber being considered sufficiently skilful and learned to practice all that was needful upon the human jaw, whose delicate structure and capacity for inflicting untold suffering upon the whole nervous system make it at once a source of the most dreadful or most pleasing associations.

As no dentist had ever visited this colony we entered the field of labor to find it a *battle-field*. Some ignorant Chinamen, who assumed to possess the "magic art," may be called competitors, when we state the fact that certain English residents did submit to the treatment of these heathen charlatans. It was however, in this distant port that, by dint of practical demonstration and years of hard work, we found prejudice gradually yielding, until it may now be said, that it would be difficult to find a more appreciative community than to-day exists in the British colony of Victoria, and in the other open parts of China, in which our skill and ability have been tested, as we travelled to fro, at the earnest solicitations of the people. But in those early days we were plied with questions absolutely foolish ; by some, filling teeth was declared impracticable ; by others, the most inferior material was expressly requested ; extraction, when totally unnecessary, was demanded ; breaking off the crowns and the insertion of pivoted teeth perseveringly suggested. But to *save* teeth, to fill and build up with the *best* material, to extract all diseased or unpreservable stumps, and cleanse, and purify, and beautify the casket of jewels in every mouth, was our unremitting labor ; here, too, the necessary charges were greeted with undisguised astonishment.

It is not the intention of this paper to discuss the superstitious opposition of the native population of China, for the poor Missionary whose mission is one of love, and whose philanthropic life-work develops so slowly, certainly had less difficulty than we, whose only outward recommendation was a dental chair, and an array of surgical instruments. In fact, our only "Celestial patients" were those merchants and officials who had been in intercourse with Europeans, on in foreign employ, and the pretty peasant girls, who were the morganatic wives of our merchant princes. But just here, we may perhaps please our friends by an allusion to more recent experiences with the natives of Japan, who, eager to learn, and quick to appreciate, have come to us freely to know of the "wonderful art."

In Yokohama and Yedo our office has been opened, and nobles, officials, and merchantmen have availed themselves of the opportunity ; whilst some of the Imperial family became our grateful and confiding patients, expressing in the most tangible way their appreciation of our professional services ! Enough of this digression ; we have left the land of flowers and sandal wood, and are to-day nominally established in one of the most scientific cities of the world ! Its museums and art galleries, its statesmen, philosophers, surgeons, medical faculties and devotees to science, make Berlin the very home of intellect and progress ; and yet what shall we say of dentistry here ? It is neither understood or valued and with *two or three exceptions*, we have no true representatives of the profession.

Those who are willing to compromise the dignity of our science, and the reputation of our college course at home, by filling teeth with amalgam by the pound, and every other base and cheap material available, or those who boast of the rapidity with which they crowd into the smallest time the maximum amount of work, who refuse to properly cleanse cavities, because of the disagreeable pain necessary, who, in fact, for the accumulation of wealth (or perhaps more honorably stated, for bread and butter) really cease to be conscientious in their practice, and those who stand years behind the times without an effort to improve, declaring that "better work is not appreciated, and does not pay"—*these* we cannot recognize as members of the fraternity we delight to honour!

So much for the operators themselves, and even less for the patients. We marvel to find the duplicate of the stupidity that surprised us years ago in China, here in the midst of so much cultured ; the prices are considered fabulous which on any fashionable street in an American city you will find demanded by half a dozen dentists, each having a large practice. In the mouths of aristocratic ladies, representing the nobility, you meet with rows of teeth shining with black amalgam, almost as bad in its effects as the bottle-nut on the ladies of the east. In others we find decay gaining complete mastery and constant suffering born with martyr-like patience, whilst the victim coolly declares, "so soon as they all rot off they can be filed down so as to wear false sets without extracting the roots." The young ladies would surprise our belles of 5th Avenue and Chestnut street, by meeting them on the fashionable promenades, with large black patches over the mouth to exclude the air ; whilst soiled dentures and the incipient stages of decay meet one with almost every new acquaintance. Where does the fault lie ? The most overwhelming cause of our complaint is, that quacks and charlatans pamper to the ignorance and prejudices of the people in this matter, and *impose* upon them by yielding to their *prices*, giving them the most inferior and improper services in return. What wonder then that the whole system of dentistry is depreciated, when a few months must reveal the fact that the money, the pain, and the time have brought such poor results ; in fact, on account of these rivals in the profession, unless there is a strong private purse, the operator will find outside of the United States almost insurmountable difficulties, because he *must* require remuneration superior to those who by their insignificant prices retain such a strong hold on the masses. The majority are perfectly able to pay for first-class work that will *endure*, but continue to submit to these *barriers* to the rapid progress of dental science.

Now, whilst men of science are searching for the "missing link," and are sending forth their emissaries into distant lands to secure the moulds or impressions of mouths, to assist them in determining the characteristics of race—why, in the name of common sense, do they show such apathy and indifference to the development of their own dental structures, and are regardless of one of the most beautiful and important physical developments ? Are the obstacles we encounter the fault of the people, or the profession ? Oh, for a dental convention in Berlin ! We need the pluck that dare do right, and will refuse to do *less* than right, even though a patient must be sent away when one is *needed*. We need standard-bearers who will not lower the flag of *true* science ! Just here, it is my pleasure to refer to the *pioneer* dentist of Berlin, our friend and

cotemporary, Dr. F. P. Abbot, who has in twenty-five years, by conscientious and progressive efforts, won an enviable reputation, and justly so; who has been battling with difficulties, and has in a measure overcome many, having introduced instruments, gold, &c., in the dental depots themselves, that were formerly unknown to the profession here—a man who endeavours to improve as our science advances, and who well merits the esteem of our society and the confidence of his patients.

In a city the population of which is over 900,000, the field ought to be “ready for laborers,” and surely is “white for harvest,” and if one cannot reap gold, it is not because there are not enough teeth ripe with decay!

It is, we think, certainly *worth a struggle* to be *victorious* in this branch of science, *where all other knowledge is so profuse*.—*Pennsylvania Journal of Dental Science.*

Practical Communications.

BY ALEXANDER SCHELLER WARSCHAW.

INTERRUPTED DEVELOPMENT OF A TOOTH GERM.

A SHORT time ago a remarkable case came under my observation. In a boy, eleven years of age, there appeared over the second temporary grinder (the first being still present) the crown of a bicuspid—the temporary tooth not being at all decayed—which was to be extracted.

By a superficial examination it struck me that near the new crown pus was present, and on touching the same I convinced myself that the new crown was decayed. Examining the contour I pressed directly on the neck of the tooth below the crown. Under these circumstances, which admitted of no doubt that the germ had been disturbed during its development, there remained for me only extraction of the new tooth, which was accomplished by a slight movement of the prolie. The perfect temporary tooth was of course left in its place. The bicuspid fully developed as far as the neck, thus brought to light, had assumed its characteristic form, and had the appearance of a normal temporary tooth expelled by resorption, with a deep erosive furrow, with the real caruncles, which the remains of the tooth germ showed. Traumatic causes were not owned by the patient, but frequently occurring abscesses were there. Were the abscesses the cause of the decay of the tooth germ, or were they rather the consequence, that is to say, did they arise from the dead tooth as a foreign body? We shall probably not be wrong if we agree to both. Consecutive abscesses led principally to the diminution of the tooth.—*Deutsche Vierteljahrsschrift.*

Practical Communications.

BY FR. KLEIMAUN, OF FLEUSBURG.

SUPERFICIAL PARTIAL NECROSIS OF THE HARD PALATE, PRODUCED BY PRESSURE FROM A RUBBER PLATE.

ALTHOUGH partial or superficial necrosis of the jawbone is by no means

rare, its production as a consequence of the pressure of a rubber plate has up to the present time not occurred in my practice.

I have sometimes seen that the hinder margin of the upper plate, and the side edges of the upper and lower plates, have from pressure produced deep wounds and ulceration of the soft parts, and that patients have borne this condition with true animal courage for weeks, but I have never seen partial death of the bone ensue. It may, however, be expected that partial death of the bone might arise from continuous pressure on the gums, when we remember that rapid periostitis passes on to suppuration, disturbs the periosteum, and causes necrosis. Internal causes, such as scrofula, syphilis, and so on, naturally favour the condition of necrosis. In the case under my observation it was not the edges of the rubber plate which caused necrosis, the pressure was in the centre of the arch of the palate, arising, therefore, from the palatine surface of the plate. The case is as follows:—A delicately formed small man, between 40 and 50 years old, had several years previously lost almost all his teeth in the upper jaw, and was at last obliged, on account of his situation, to have them replaced by artificial ones. The palate was extremely small, and towards the front went to a pointed angle. The alveolus was very much shrunk, and only to the left were found two longish small back teeth. In the lower jaw incisors were present, the whole of the other teeth being absent, and the double bite made a projection of the lower teeth remarkable. On the 26th of October, 1873, a black rubber plate with six teeth set in pink gum, was placed in the mouth, fixed by rubber rings round the two natural teeth. The new teeth were well matched, and the plate fitted well. After four weeks (November 22), the patient finding the plate too loose, wished to have gold rings instead of rubber fastened firmly round the teeth. After the alteration the teeth fitted like wax, and the patient left extremely satisfied. However, already by the 29th of November he returned, complaining of pain in the centre of the palate, where the plate pressed on a space the size of a pea. The plate was adjusted, and the patient given tincture of myrrh. December 14th.—The patient otherwise well, but the spot on the palate not healed. On using a blunt sound, a rough moveable substance was felt in the middle of the ulcer in the palate, which being removed by hooked nippers was found to be a piece of necrosed bone, one millimetre broad and four millimetres long. The place was constantly painted with tincture of myrrh, and by the 31st of December was completely cured.

The patient thought that a small splinter of bone from food had got under the plate and caused the abscess. I found, afterwards, on closely observing the plaster impression, that in the centre exactly where the pressure occurred, an elevation like an oat grain, which the pressure from the palate dissipated so greatly that a corresponding impression in the rubber could not be discovered. In this case we must not overlook a predisposition, which the outward appearance of the man and a stiff knee joint, suggested.—*Deutsche Vierteljahrsschrift.*

Salivary Calculus having caused Inflammation of the Velum of the Palate and Base of the Tongue: Expulsion of this Calculus, and Cure of Inflammation.

BY M. GOUGUENHEIM.

THIS calculus was taken from a man thirty-five years of age, subject to winter colds, but otherwise showing on rational or physical sign of tuberculosis. This man complained of slight pain in the throat, which became more and more acute. An examination showed slight redness of the velum of the palate, and the pillars of the fauces, no modification of the consistency of the affected parts being recognised by touch. The pain was only more acute when during examination the base of the tongue was depressed. The patient was tormented by incessant movements for deglutition, and complained of a continual sensation of spasm of the throat. At the end of four days the pain having become more and more intolerable, suddenly ceased after the evacuation of a longish cylindro-conical concretion of more than a centimetre in length. This concretion was of a dirty yellow colour, and appeared formed of a certain number of layers of organic and inorganic matter disposed in a concentric manner.

The form of this small body induced me to think that it was a bronchial concretion, but an histological examination undertaken by M. Coyne, showed the structure of a salivary calculus. I could not determine precisely at which point this foreign body was lodged.

M. Périer. It probably rested beneath the arvueno-epiglotidean folds, or behind the large cornu of the hyoid bone.
—*Progrès Médical.*

Supernumerary Tooth taken from the Socket of a Recently Extracted One.

BY W. B. SPENCER.

A NEGRO girl, aged twenty-three, called to have right superior canine extracted. I found it badly decayed, and with considerable difficulty removed it. She went away, but returned in a few hours with a curious specimen of the *genus canine* (you will find said specimen enclosed) which she said she took from the socket of the tooth that I extracted. You will see that it is a well shaped canine, although only about one-fourth

the normal size. You will also see that absorption had commenced at the apex of the fang, which has exposed a small nerve canal. What is it?

EDITOR'S REMARKS.

The dimensions of this tooth are as follows: Crown five millimeters long, three millimeters wide, and one and a half millimeters thick; root fifteen millimeters long, and one millimeter thick at the middle, tapering to a sharp point. Weight one grain. Specific gravity 1.75.—*Missouri Dental Journal.*

A More Liberal Organization of Dental Colleges.

BY HENRY S. CHASE.

WITH the progress of liberality in our profession, it seems to me that a change should be made in our colleges. In the first place I would take away from the Faculty of a college the power of examination for a degree. I think the Faculty should be only teachers. Let the examination be made by a *Board* appointed for that purpose, and made in a thorough manner. Let every candidate for graduation stand or fall on his examination. Above all I would allow the dental student to procure his knowledge where and when he pleases. He should not be required to get it at any *particular* college. He should present to the examiners evidence that he has attended two or more courses of lectures on every branch required by the institution in which he wishes to graduate; including practical work in the infirmary. Evidence of attendance on college instruction in *any* respectable college or hospital, either in this country or Europe, should be received and considered as valid for graduation as though attended at the institution in which the candidate wishes to graduate. A student might prefer to attend the lectures on anatomy at one college; those on physiology at another; those on materia medica and therapeutics at another, &c., &c. The best lectures in the various colleges would draw the greatest number of students.

Scientific men should be liberal men. Dogmatism and bigotry should be discarded. Let there be free teaching and free thought, and charity to all. A college organized on this basis ought to, and I think would, receive the friendship of all similar institutions of learning. There are many students who reside in or near towns having a *medical* college, but no dental college. A student could attend the required medical lectures in his own town, and afterwards, when he got ready, attend the *special dental course* in the city having a dental college.

A little thought will convince any dental student of the advantage of this liberal course. Whatever might be the result to any individual college, I think that to the profession at large the plan would be productive of good. I should be glad to hear from members of the profession, through this journal, on the subject. Let it be discussed.—*Missouri Dental Journal.*

London Dental Hospital, Leicester Square.

CASES TREATED AT THE DENTAL HOSPITAL OF LONDON DURING THE
MONTH OF JULY.

FIRST.—Three women applied here for the removal of three fibroid tumours of

the guina, two of which were comparatively small, whereas the other had been slowly increasing for nine years.

Each was removed in the usual way, the first by myself, the second by Mr. Gregson, the third by Mr. Coleman. With the last named, on account of its size, which exceeded that of a large walnut, implicating three teeth, a more formidable operation had to be performed. Mr. Coleman administered the nitrous oxide gas and sulphuric ether, and when the patient was under its influence, he extracted an upper central, lateral and bicuspid. After pausing five minutes he again administered the same, with a hope of completing the operation, but on account of the profuse hemorrhage collecting at the back of the mouth, which possibly might have found its way into the larynx, Mr. Coleman discontinued, at the same time taking care to keep the head forward in order to allow the blood to escape. After it had ceased a little, he again got her under the anæsthetic, and then he finished the operation. As the bleeding seemed considerable, he cauterized the part with an iron. The patient, as one could readily understand, could get little rest for a night or two without a sedative, so I gave her three grains of croton chloral hydrate every night. She did well, and slept nicely. Before the operation she could not close her lips, besides great protrusion of the upper, now she can easily, which adds materially to the improvement of her visage.

Second.—Two men came here for advice about their teeth, they having suffered very much for months. On examination the teeth appeared free from disease. There was a little tartar round the necks of certain teeth. This I removed. On diagnosing, I ascertained that they had had syphilis. As they seemed to complain of rheumatic pains in their bones as well, I thought I would put them under a course of iodide of potassium, with an occasional dose of croton chloral hydrate at bedtime when sleepless. After pursuing this treatment for a fortnight or more, I altered the iodide mixture, to one composed of tincture of perchloride of iron and sulphate of quinia. This they continued for two weeks or so, which greatly relieved their periostitic pains.

Third.—This was a case of a little girl, *æt. 6½*, sent here through a medical practitioner, to get our opinions as to whether the weakness of the eyes and impairment of vision could in any way be produced by the irritation of several decayed temporary teeth. This child had derived no benefit from twelve months' previous treatment. To give the patient the benefit of the doubt, five carious teeth were removed. Mr. C. S. Tomes and Mr. A. Hill were of opinion, from the delicate condition of the girl, that it was not entirely due to the teeth, still strongly advocated the removal of any offenders which might partially be the means of restoring her to a better state of health. In all probability I shall again refer to this case.

Fourth.—In your last month's Journal I alluded to a doubtful case of hypertrophy of the gums and alveolar border. Mr. Tomes and Mr. Campbell de Morgan decidedly approved of operative procedure, but the patient declined having anything done for the present.

Fifth.—This appears to be a case of syphilitic ulceration of the mucous membrane of the palate, but from the scrupulous manner in which the patient (a porter, *æt. 52*) replies to his questions, I am unable clearly to arrive at any conclusive evidence. I ordered him an iodide of potassium, and chlorate-

of potash mixture, twice a day. On his next visit I hope to order him a nitrate of silver lotion, to be applied night and morning. Time alone will prove the result.

Sixth.—On August 9th, a woman applied here for the removal of many stumps and teeth. As she possessed no special order for the privilege of having them extracted under an anæsthetic, I conceded her permission to have it. During the operation the jaw was luxated. On recovering consciousness, and re-setting it, she coolly remarked "Oh, that is nothing! it often gets out of place, and I put it right myself." This exempted the operator from any anxiety as to his unskilful handling of the patient during the operation.

JAMES MERSON,
Dental House Surgeon.

Correspondence.

Answer of the New York College of Dentistry to American Correspondent.

(Issue of May 15th, 1875.)

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

UNDER the head of "Correspondence," in your Journal for May, 1875, appears a letter, headed, "From our American Correspondent." After reading it over, our first impression was one of pain, that the Harvard Dental School, for which we have always entertained the warmest feelings of regard, should, by malicious and slanderous assertions against her sister colleges of the country, seek to *advertise* herself. On second thought we recollect the high-toned character of the professors of the medical and dental departments of Harvard College, and concluded it incompatible therewith to entertain against them even the suspicion that they were parties to this unprecedented style of advertising.

The New York Odontological Society is composed of well-known professional gentlemen, who represent the first rank of our metropolitan dentists. We hardly believe that they, as a society, endorse this *unique* college advertisement. We are the more inclined to exclude them from any honours in this attack on American Dental Colleges, to the extolling of Harvard Dental School, as all of them who hold a Dental College degree have, with two exceptions, received it from either the Pennsylvania Dental College, the Philadelphia Dental School, or the New York College of Dentistry. We therefore come to the conclusion that the correspondent was the only person "moved to send (you) another letter of chat." Who this kindly disposed gentleman is we do not know: but, writing as he does from New York City, he certainly fulfilled his "promise" to write "about our local matters."

Now, Mr. Editor, we have enjoyed the privilege of attracting from your midst certain gentlemen, who have returned as our alumni. We, as their *alma mater*, feel that we owe it to them personally, and to our self-respect, that we ask you to allow us to answer the correspondent's assertions, which reflect upon the New York College of Dentistry. We

do not wish to make your pages an arena, but simply wish to be heard by the dental profession of England, in answer to assertions and insinuations intended to blemish the character and standing of the New York College of Dentistry, in the minds of those whose respect we most desire.

It was a great source of regret to our faculty, that Mr. Turner should have, during his stay in New York City, learned of the "inner workings" of our College from those who knew so much to its disadvantage, and nothing to its advantage. We trust, however, if in the future Mr. Turner, or any other representative member of the dental profession of Great Britain, comes to our city, that we may be afforded an opportunity of telling that of which we are not ashamed—"the inner workings of the College."

Our would-be historian is somewhat at fault in his chronology of the events of which he speaks; therefore, we will be pardoned if we transpose his subject matter a little.

Our friend and panegyrist gives the names (page 568, line 3, &c.), of some of the members of the board of Trustees who served during the first four years of the College (we were chartered March, 1865, and opened the College October, 1866) while we were casting about, heavily water-logged by inexperience, and weakened by petty jealousies, personal quarrels, and the inefficiency of some of our then incumbent officers and professors. At this juncture (March, 1869), the writer correctly states "certain scheming ones saw that it would be a very good thing if the New York College of Dentistry, all organised as it was, with its corps of instructors, having already some experience, could be directly united with the "College of Physicians and Surgeons" (page 568, lines 1, &c.)

It was indeed true that certain of the trustees and faculty (a small minority) conspired to betray their colleagues. Knowing full well that their scheme would not be countenanced by "a popular movement among the profession," they endeavoured by intrigue and sharp practice, "to engineer their ideas through privately." So privately was their "engineering" conducted, that the secret of this plot in 1869, was not divulged until 1875; therefore "those whose professorships would necessarily be annulled by this union, &c. &c.," were in ignorance of the movement, and remained so until the present year (1875). The language of the "chatty" writer would lead me to believe that he really was disappointed at the failure of this praiseworthy and honourable manoeuvre.

By a most fortunate turn in the tide, our college (early in 1869), the board of Trustees (those not in the above referred-to scheme), unwittingly baffled the plans of the mutineers. Immediately the disconcerted ones retired, in order to bring the moral weight of their resignations to bear upon a last alternative, viz., the Attorney General of New York State was applied to, bonds to commence a law suit were filed at the state capital, and the legal power of the state was brought down upon us, to take away our charter, and close our institution (page 568, line 3), "for alleged irregularities."

Pending this lawsuit, when our persecutors thought they bid fair to crush that which they had failed to get control of by "scheming," comes in chronological order (about May, 1869), the following, (see page 568, line 8, &c.):—

"In 186—, the College of Physicians and Surgeons asked the dental profession, through certain of their members, whether they would give their moral support to the movement, if the College of Surgeons would

appoint a corps of dental instructors. To this question, which was put in writing, seventy or eighty, comprising all the best dentists in the city, gave an unqualified affirmative, by appending their signatures to the paper."

A petition was drawn up and circulated by our defeated friends for signatures. The same was presented to the late Professor E. Delafield, M.D., President of the Board of Trustees of the College of Physicians and Surgeons of this city. He called upon the then President of the Board of Trustees of the New York College of Dentistry, and informed him of the petition, stating at the same time, that it was represented to him that the College was not to be reopened. He wished to know if such was the case; also the nature of the suit against the College. The President of the New York College of Dentistry informed him of the merits of the pending litigation, and that the College would reopen. After this interview, President Delafield declined to entertain "the question which was put in writing."

The writer truly stated that in the law-suit Dr. Kingsley did not have the active sympathy of the whole profession" (page 568, line 36, &c.); he erra, however, in the following

Assertion—(page 568, line 38, &c.): "he _____ allowed the injunction to fall, upon the receipt by him, from the Trustees, of an agreement exempting him from all liabilities because of his action in the matter, and upon their assuming the payment of the legal expense incurred in closing their own institution."

Fact 1.—The lawsuit against the College Trustees was stopped by order of the Attorney General through his deputy, after he had heard our statement of all the facts in the case, he regarding the whole affair as an unwarrantable persecution.

Fact 2.—In the order of the court, declaring the closing of the suit, it is explicitly stated that "the same is hereby discontinued without costs to either party."

In the subsequent portion of his "chat," the writer premises by an apology for lack of "matters," and for the first time acknowledges that he is not infallible (page 569, line 4, &c.). "From that time (October, 1869) to this, it has been extremely difficult to obtain any accurate information in regard to the inner workings of the College."

No doubt we have been very culpable in not taking our well-tried *friends* into our councils.

In the absence of "any accurate information," the scribe tries his hand at inuendoes (page 569, line 7, &c.):—

Assertion.—"The state appropriation which had been given to it as a charitable institution because of its infirmary, has stopped, and since then, except for the fact that it has a charter, it might as well have been a private school."

Fact.—State appropriations were formerly made on special applications to the State Legislature, and had to be renewed from year to year, if desired. The Trustees of the College made two applications for an appropriation, on the second of which, in 1870 (after the law suit), an award was granted. Since then the Trustees have never applied, as the infirmary has not needed a state appropriation. At present, the Constitution of the State has been so amended as to forbid any state appropriations for local charities.

The municipal authorities of New York have, since the opening of the

Dental Infirmary of the New York College of Dentistry, recognised her claims as a public charity by an annual donation from the city's charity fund.

To those unacquainted with the existing reasons, therefore, the following is made to appear as a reprehensible state of affairs, for which the faculty should be held accountable (see p. 569, line 15, &c.):—

Assertion.—“One thing in their announcement looks very badly: every member of the faculty is also on the board of Trustees, a condition of things without a parallel in any of the other dental colleges in this country which pretend to be public institutions.”

Fact.—(Extract from Charter of Incorporation of the New York College of Dentistry.) “The professors of said college, while professors therein, shall be members of the board of trustees and directors.” This is the law, *made for us*, under which we act, and our Trustees (not of the Faculty), have as yet seen no reason for having the same changed by act of the Legislature.

In conclusion, I would ask you, Mr. Editor, and you of the medical and dental professions of Great Britain, whether at the educational centres of your country, the earnest and laborious efforts as exerted by incumbent authorities of educational institutions, public charities and editorial chairs are met by the individual support of the local profession; or, if on the other hand, personal jealousies, disappointed ambitions and individual egoism lead to fault finding, and at times open secession of *alumni* even, who envy the success that crowns all well-intentioned, earnest and conscientious effort.

As you must perceive by the tenor of the correspondent's letter, we as a college, have to be thankful that here in New York city we are *exempt* from the latter state of affairs!

On behalf of the Dental Colleges of the United States (Harvard Dental School excepted), we would thank the oracle on American Dental Education, for the following (see page 567, line 30, &c.):

“All candid observers must admit that the system of dental teaching in America, such as it has been even, has contributed not a little toward giving the profession the standing which it now enjoys before the public.”

For ourselves, we would give thanks for the following:—“along with some younger men who were not at the time so well known as they now are by a good deal” (see page 568, line 6, &c.). That we of the Faculty who were associated (in 1865 and 1869) with the *dental magnates* referred to as in the board of Trustees (page 568, line 4, &c.), had the misfortune to have been ten years younger than we now are, was perhaps a crime. It is, however, gratifying for us to reflect that we have succeeded in making ourselves better known “by a good deal,” and that our efforts, since we have been rid of our former friends, have been found worthy of the eulogium upon the college management—“it is probably better conducted now than it was three or four years ago.”

Thanking you for your kind indulgence and ready acquiescence, in affording the New York College of Dentistry an opportunity to vindicate the truth in behalf of her English *alumni* and herself,

I remain, very respectfully yours,

FRANK ABBOTT, M.D.
Dean of the Faculty.

The Dental Hospital of London and the Gold Question.

TO THE EDITOR OF "THE MONTHLY REVIEW OF DENTAL SURGERY."

SIR,—The following is a copy of a letter published elsewhere :

"THE DENTAL HOSPITAL OF LONDON AND THE GOLD QUESTION.

"To the Editor of 'The British Journal of Dental Science.'

"Sir,—The gold question admits of ready solution. Let each student provide his own materials for fillings. For those who cannot afford to insert *large* gold fillings, tin-foil will be, especially for beginners, a capital substitute, both on the score of *economy* and comparative ease of manipulation. To charge patients for material used must be derogatory to the dignity of the hospital and all concerned.

"Yours, &c.

"Scarborough, June 20th, 1875.

"C. J. PEACOCK."

I am asked by many of the students here to reply to the above letter, in order to convey the impression that exists amongst those who already consider their pecuniary demands sufficiently taxed, without any further propositions being carried to extend them, more especially for the benefit of disinterested pauper patients. They seem to think it irrational for them to be expected to defray the expense of the gold consumed.

The present system works, I think, fairly, to the satisfaction of the patient, student, and funds of the hospital. I quite agree with Mr. Peacock that for beginners tin-foil makes a fair filling, and gives an amateur a rough idea of how soft foil or non adhesive gold should be inserted. I invariably say to a new student, let me see you plug half-a-dozen teeth with tin-foil, which if thoroughly condensed and burnished to my satisfaction, will be the means of my entrusting patients in your hands who require gold stoppings. This I do regardless of the limited period he might have attended here. Perhaps I have never inserted more than 200 tin-foil fillings, which on reflection I have never regretted, as they have been the means of giving me a good idea of how a cavity should be shaped prior to receiving a non-adhesive plug. In large molar cavities, the gold is economized by plugging the fangs and floors with tin foil, filling the remainder with gold.

At a recent demonstration of Mr. Underwood's, he adopted this system by packing $2\frac{1}{2}$ sheets of tin foil, and 10 sheets of No. 4 gold into a lower molar.

Some argue that tin foil is as good practice for the student to fill with as gold, here I must agree to differ. To become an expert gold filler, I must confess that I believe the royal road to it is not gained by the manipulation of tin foil, but gold.

Hoping you will find space for this insertion, which will confer a great favour on many of the students.

I am, truly yours,

JAMES MERSON.

Dental House Surgeon.

TO THE EDITOR OF "THE MONTHLY REVIEW OF DENTAL SURGERY."

DEAR SIR,—Will you allow me to correct a mistaken impression of Dr. Hogue in his letter in last issue, where he states that I am *pecuniarily inter-*

ested in the sale of ivory mortars for moulding amalgam blocks devised by me. The fact is, that to make a thing of this kind generally known to the profession entails a first cost of not less than £20; my profit on these mortars amounts to the magnificent sum of 1s. 8d. per dozen, and I leave Dr. Hogue to calculate how many dentists must come into existence before I begin to make a profit. I gave the thing as great publicity as possible, because its use enables better results to be obtained with a class of fillings in connection with which my name is well known, and I wrote simply to explain that Dr. Hogue was in error in claiming the invention of an instrument of which hundreds were in use at the time his letter was written, and of which a printed description would have reached him six months ago if his name and address had been in the most recent directory published.

THOMAS FLETCHER.

LONDON DENTAL HOSPITAL.

CASES TREATED FROM JULY 1ST TO JULY 31st, 1875.

Extractions .	Children under 14	...	...	...	371
	Adults	...	...	...	650
Under Nitrous Oxide	...	...	...	...	282
Gold Stoppings	...	...	...	...	217
White Foil ditto	...	...	...	...	37
Plastic ditto	...	...	...	...	273
Irregularities of the Teeth treated surgically and me- chanically	...	...	...	...	44
Miscellaneous Cases	...	...	...	...	276
Advice Cases	...	...	...	...	92
					<hr/>
	Total	...	...	2242	

JAMES MERSON, *Dental House Surgeon.*

The following Publications have been Received:—

- The Dental Register.
- Johnston's Dental Miscellany.
- Le Progrès Dentaire.
- Le Progrès Médicale.
- The Dental Cosmos.
- The Pennsylvania Journal of Dental Science.
- The Missouri Dental Journal.
- Deutsche Vierteljahrsschrift.
- Transactions of the Odontological Society.
- Correspondenz Blatt.
- Boston Journal of Chemistry.
- The Dental Advertiser.
- The London Medical Record.

TO CORRESPONDENTS.

ALL communications intended for the Editor should be addressed to the care of Messrs. SMITH, ELDER & Co., 15, Waterloo Place, Pall Mall. All inquiries respecting Advertisements and Subscriptions should be sent to Mr. GEORGE BUTCHER, 4, Crane Court, Fleet Street, E.C.

THE MONTHLY REVIEW
OF
DENTAL SURGERY.

No. IV.

SEPTEMBER, 1875.

VOL. IV.

The Manchester Meeting.

No one can quarrel with the result of the Manchester Meeting. Although many of us would have preferred to have seen such a gathering in London, rather than in the provinces, still it must always remain a source of unqualified satisfaction to the whole of the profession, that the first practical step towards prohibitive legislation, was taken in a district where the necessity for such a measure is most clearly to be seen. Further than this, we must recognize the meeting as evidence of a desire on the part of the provincial practitioners to take some active measures for advancing the social position of Dental Surgeons throughout the country—showing a willingness to co-operate with their metropolitan brethren, but at the same time clearly indicating their readiness to act alone. We cannot but rejoice in this attitude of independence, since, it affords the best possible basis for mutual respect and confidence between the two great sections of the profession. Neither party can do without the other, if they are each really anxious to promote the good of the whole. Hence it is, that whilst party independence may claim respect, if it does not stimulate mutual confidence, it will, ere long,

degenerate into selfish isolation, and become a source of weakness rather than strength.

Such a large and important part of the Dental profession having so clearly indicated their desire for some reform in the practice of Dental Surgery, it now only remains with the Committee that is to be appointed, to use to the fullest extent the influence that they will find ready for their service throughout the country.

Public meetings and declarations, after this recent assembly at Manchester, will do nothing towards obtaining registration and compulsory education. The work must be done quietly, systematically, and, to a very great extent by personal influence, throughout the whole of the provinces and in the metropolis.

The government of this country is singularly unwilling to make prohibitive laws, and assuredly a succession of energetically-conducted meetings would not lessen their disinclination. We must, therefore, patiently work and wait, and trust that ere long, we may obtain such measures of reform as will show that Dental Surgery is entitled to be considered a profession, and its practitioners worthy of the same respect and social position, as the members of any other learned profession.

The Month.

OWING to the great pressure on our space this month we have been compelled to hold over a number of valuable communications.

THE account of the Manchester meeting occupies a considerable part of our present issue. The matter was too important to be shortened in any way, we have, therefore, published it in full.

WE have to acknowledge our obligations to Mr. Charles James Fox for most courteously favouring us with early proofs containing the report of the meeting over which he so ably presided.

LONDON SCHOOL OF DENTAL SURGERY.

The distribution of Prizes will take place at the London School of Dental Surgery on October 4th, at 4 p.m., Sir James Paget in the chair.

NATIONAL DENTAL HOSPITAL.

Mr. Charles Moss, M.R.C.S., has been appointed administrator of anesthetics to the above-named institution.

HEARING THROUGH THE TEETH.

We command to the notice of our readers a most suggestive letter from Dr. Mordaunt Stevens; it will be found at another part of the present number.

DENTAL REFORM FUND.

Over three hundred pounds have already been promised towards this fund.

DISTRIBUTION OF PRIZES AT THE DENTAL HOSPITAL OF LONDON.

The Dean requests us to say that if any of the past or present Pupils of the Hospital, or any of the Members of the Odontological Society have not received an invitation to be present on this occasion, he will be glad to be informed, in order that the omission may be repaired. Several cards have been returned in consequence of change of address with which the Dean has not been made acquainted.

REGISTRATION AND COMPULSORY EDUCATION FOR DENTISTS.

A meeting was held at Manchester on the 1st instant, with a view to promoting the compulsory education and registration of dentists. Mr. C. J. Fox took the chair, and the principal resolution was moved by Mr. Dennant of Brighton, and seconded by Mr. Wormald of Bury. It is in a question whether any government would be prepared to pass an act rendering dental education compulsory, since the practice of dentistry in many of its branches involves no personal risk to the patient from the ignorance of the practitioner. It is different with dental surgery proper. Here we find an undoubted necessity for higher education of a compulsory character, but it must be quite separated from mechanical dentistry, and hence arises a complication. The promoters of the present movement evidently overlook the point that we raised some two weeks back, that dentistry is still half a profession and half a business. We should have thought that an attempt to obtain registration would have had the best chance of success if it had been commenced in London, since in the metropolis we have the largest proportion of dentists possessing a purely surgical degree; we shall, however, watch the movement with interest, to see how far the profession is prepared for the great change that the movement, if successful, involves.—*The British Medical Journal.*

Dental Reform.

REGISTRATION AND COMPULSORY EDUCATION.

A NUMEROUSLY attended meeting of Dentists was held at the Clarence Hotel, Manchester, on Tuesday, August 31st, to consider what course should be adopted to endeavour to alter the present anomalous position of Dental surgery in this country. The Clarence Hotel is well known as a place of meeting in Manchester, possessing a large room properly prepared for such purposes, on this occasion an excellent bust of Mr. Tomes occupied a prominent position above the chair, and long before two o'clock, the appointed hour, the room was filled with gentlemen from distant parts, many of whom had arrived the previous day, and enjoyed the hospitality of their Manchester friends.

Among those present we observed—

Messrs. T. H. Allingham, Manchester; L. Armitage, Ashton; E. Ball, Bux.

ton; R. Blair, Manchester; R. Brierley, Stalybridge; B. Buckley, Rochdale; J. Butcher, Southport; J. Carter, Leeds; J. S. Crapper, Hanley, Staffordshire; G. H. Crowther, Wakefield; R. Davis, Manchester; J. Dennant, Brighton; M. H. Dennis, Manchester; T. Draw, Manchester; Thomas Fletcher, Warrington; G. Frost, Manchester; H. D. Garnett, Huddersfield; A. P. Garland, Blackburn; G. Gillbody, Manchester; J. T. Hanson, Manchester; J. R. Hatton; J. J. Hargreaves, Manchester; T. Hargreaves, Manchester; T. Headridge, Leeds; W. Headridge, Manchester; J. Hewson, Manchester; J. Hooton, Manchester; R. Hopkinson, Salford, Manchester; F. A. Huet, Manchester; J. L. Huskinson, Nottingham; W. Jourdain, Manchester; W. Kelly, Manchester; J. H. Kyan, Preston; W. Ladyman, Liverpool; J. Laws, Bolton; C. Leadbetter, Manchester; E. Lloyd, Salford; H. Marsh, Manchester; W. Margetson, Dewsbury; J. W. Marston, Wakefield; T. Masters, Huddersfield; A. McDonald, Chester; T. McKelly, Manchester; Wm. McOwen, Blackburn; E. Melrose, Ashton-under-Lyne; J. Morton, Manchester; Thos. Murphy, Bolton; W. J. Newman, Liverpool; J. O'Duffy, Dublin; John H. Parker, Leeds; E. Pierrepont, Manchester; J. Renshaw, Rochdale; R. D. Richardson, Manchester; W. Richmond, Sheffield; P. R. Robinson, Manchester; W. W. A. Sandersq, "Hospital Gazette," Manchester; J. Shillocock, London and Cannes, France; W. Shillinglaw, Birkenhead; H. C. Smale, Manchester; R. E. Stewart, Liverpool; C. Stokes, Sheffield; F. Taylor, Manchester; J. I. Lidswell, Halifax; W. H. Waite, Liverpool; R. Walker, Manchester; H. J. Warrington, Manchester; T. Wealthall, Manchester; E. H. Williams, Manchester; D. A. Wormald, Bury; Sidney Wormald, Stockport; T. Wormald, Oldham; J. Wright, Manchester; and Charles James Fox, of London, who on entering the room and taking a seat at the side, was received with such a greeting as could not but have been gratifying to him.

Mr. SIDNEY WORMALD immediately rose and said that having with some diffidence taken upon himself the liberty of issuing the circular convening the meeting he must express his gratification at seeing so large an attendance to day in response to it. It was necessary to explain, first of all, that when the friends who had co-operated with him in this matter had first issued a circular calling attention to the anomalous position of their profession they had only intended to make the movement local, with Manchester as the centre, and to invite one gentleman from each surrounding town as a representative, so that some course of action might be organised; but the replies had been so encouraging, especially within the last few days, that they felt that it ought to be made a more wide spread and universal affair. They had done their best in the short time at their disposal, but there was not time to do all they wished, and he hoped those gentlemen who had not received an intimation of the meeting would accept this explanation. He begged they would accept his thanks for their attendance, for he believed he had taken a very great liberty, considering, as he did, that he was only a small man in the profession. They had gentlemen present amongst them from France, Dublin, Brighton, Liverpool, Preston, Southport, Sheffield, and from Manchester and every important surrounding town. There was also a gentleman present from London, and he was glad to inform the meeting that they had the sympathy, good wishes, and support of many of the leading gentlemen in London belonging to the profession. He would not occupy their time by entering into any explanations or details of the object of the meeting, nor would he detain them by reading a large number of letters he had received on the subject; but he might tell them that all the responses to the circular were unanimous in the expression of a desire to support in every way the object in view. He would not take upon himself the honour of introducing to them a gentleman who, he was sure, they would all be most proud to see amongst them. He would leave that to his friend Mr. Huet, who had co-operated with him in this

effort, and whom it had been originally intended to call to the chair. The movement had assumed such large dimensions that it was not likely their meeting would ever be forgotten. He hoped that every gentleman present who had the interest of his profession at heart, would put his shoulder to the wheel and assist in gaining that protection for it, the absence of which in the present day was, he would venture to say, a disgrace to them. Mr. Wormald concluded by calling upon Mr. Huet to propose a chairman.

Mr. HUET said, When it was first decided to hold the present meeting it was true, as Mr. Wormald had stated, that he was solicited to take the chair on this occasion, but since then they had been fortunate enough to obtain the presence of Mr. Fox amongst them. Under these circumstances he considered that it would be bad taste and presumption on his part to wish for a moment to occupy the position, for he felt persuaded that it would be a great gratification to all present to see Mr. Fox in the chair. He therefore proposed that Mr. Fox be solicited to preside over the meeting.

Mr. STEWART, of Liverpool, begged to second Mr. Huet's proposal, and to add that he felt certain that their selection of Mr. Fox as their Chairman would not only give entire satisfaction to all present but to their professional brethren throughout the United Kingdom.

The proposal was approved of with acclamation.

Mr. FOX, on taking the chair, said—

Gentlemen, it is with an almost overwhelming sense of responsibility that I take this chair, for the assembly over which I am now called upon to preside is the first that has ever met, if not in the world, certainly in Europe, for the GENERAL purpose of seeking for the adoption of some measures to raise the social status of our profession.

It is the first meeting in which men of all grades, men of all parties, men of every diversity of opinion, have united, either in person, in sentiment, or in pocket, for one common object, and according as we act to day, good or evil may result to the profession at large.

I do not for one moment forget that there have been grand meetings in London, in present and former years, but they have been all held for some special scheme, from which a large and influential section of the profession specific purpose, or for the promotion of some have held aloof, either on the one side, or on the other. The first great public meeting of past years was held for the establishment of an independent College of Dentists, separate from the medical profession, and from that movement nearly all those who by the world are regarded as the heads of our body, from their scientific attainments, their long practical experience, their wealth and social status, held aloof.

On the other hand, the meetings held by those leaders were for the specific purpose of promoting the union of Dental Surgery with the great medical body, but they were not as a rule, supported by that other influential body, the great mass of Dental practitioners in the provinces, who by their very numbers have such a powerful influence upon the public mind either for good or for evil; for it is by that great body, and not by the select few in London, that the public form their opinion; but now it has become evident that, notwithstanding the establishment of societies, hospitals, schools, and diplomas, there is a gradually increasing feeling that something yet is wanting to complete the establishment of Dentistry—I use that word advisedly, as including both the mechanical and surgical branches—in that honourable position in the public mind which it ought to hold. Therefore, if I rightly comprehend the object of this meeting to day, it has met for the GENERAL purpose of considering whether any steps should be taken to improve the social position of the whole body, and for this purpose we have here assembled, or otherwise in unison with us, gentlemen from town and from country, those who look upon advertising as a necessity, and those who look upon it as a

vice, old practitioners and young practitioners, those who profess to ignore the mechanical department, and others who maintain that we are trying to be *too* surgical, gentlemen with diplomas, and gentlemen without them, advocates for independent colleges, and advocates for the closest union with the medical profession. From my heart I am one of these last, and return my cordial thanks to that honoured band, the fathers of our profession, who obtained for us this boon in years gone by—ever encouraged in their laborious work, and wisely led on by him, who has devoted himself to the elevation of his profession, whose every thought is associated with progress, by him, whose representation surmounting this chair, seems as it were to preside—over me—at this meeting—JOHN TOMES.

Gentlemen, in our endeavours to raise our profession in the estimation of ourselves and the general public, I trust we shall act to day with such moderation, such discretion, as to secure the approbation and co-operation of Mr. Tomes, and his colleagues in those past movements which have done so much to raise Dental Surgery to the proud position it now holds before the medical world.

Having thus endeavoured to show you how heavy I feel is the responsibility of the position with which you have honoured me, permit me, whilst I thank you for the confidence you seem to place in me, to assure you, that seeing there are so many practitioners of eminence in this great town who would worthily have occupied the chair, I have only acceded to your wish in the desire to convince you, that London practitioners are not unmindful of the political interest of their provincial brethren, and from the belief, that from no individual merit, but from my public position for seventeen years as Editor of the "British Journal of Dental Science," I might perchance possess sufficient influence to induce you to attend in greater force, and lift up your voice against the present anomalous position of Dentistry in this country.

Gentlemen, it needs no words from me to show that our position as Dentists is an anomaly, and I must not unduly take up your time by telling you what you all know so well. We all have our different grievances on this point, and our different theories for their remedy—some think it a grievance that diplomas are not more easily obtained by the elder practitioners; the young one with his diploma by curriculum thinks they are already granted too easily; another complains that there are no local societies, or another that there are no provincial Dental schools. Another great grievance and sore point upon all sides is the advertising question and the different methods of conducting practice. A looks down upon B because he puts a long description of his skill and attainments in the papers, whilst C equally despises A for only putting in a simple card, forgetting that he in turn is held in equal abhorrence by D for not being content simply with his name on his door-plate; therefore, as we all mutually despise one another, let us put by that dreadful question for to day and discuss our business as Dentists all alike? Nay, if you like, let us say we are all advertisers.

I know some of you think me an advertiser because I happen to hold some hospital appointments, so for to-day let us consider that we are all sinners together, and see if we cannot unite as simple Dentists, and putting aside all minor differences, let us take hold of our one great grievance that we all have reason to complain of—let us hunt that to the death, and then perchance we may have time and thought to dispose of matters minor. Understand me, I do not yield one iota of my views against advertising; I only say let us avoid that question for to-day, and I know not any place where I may so safely propose to do so as in this great city, for, although I believe there are in it over ninety Dentists, there are not more than half a dozen who advertise or make a public exhibition of their profession. This is a grand thing for Manchester to say, and proves that she is worthy to lead the

van in contending with the great evil we are met here to oppose, viz. want of protection for the legitimate Dentist from the competition of men who, without the least previous training, are daily entering their names upon the public directories as "Surgeon-Dentista."

I know that there is a certain number of experienced and thoughtful men who do not believe that it is possible to prevent such a competition, but I am sanguine enough to believe that if it cannot be wholly done away with, it can be lessened to a very great degree. Now, when a man proposes to see if any evil can be rectified, he is at once assailed with the cry, "Well, how will you do it? what plan do you propose?" and if he is not prepared to suggest some definite course of action he is only looked upon as a foolish grumbler who had best hold his tongue: but if he is ready with a definite proposal he is sure to find some who will support him, and the scheme can, at last, be examined, tested, improved, and, perhaps, ultimately tried. Then, if it fails, at least room is left for the development and essay of other ideas. Better plans, perhaps will result, which would have laid dormant for ever had not the first been propounded. It was with this feeling that, in 1870, I first proposed the plan of Registration and Compulsory Education, which was revived in the leading article of the last August issue of the Journal. You have most probably read that up again previously to coming to this meeting, and therefore I will only briefly refer to certain portions of the plan.

The chief points of that plan are—

- 1st. That all existing practitioners shall be registered.
- 2nd. That no one shall be able to recover fees as a Dentist unless so registered.
- 3rd. That, after a fixed date, none shall be so registered unless he possess a diploma.

These are the chief points of the plan that I should propose for the consideration of any committee that might be formed to carry out the feelings of this meeting. There are, of course, many minor details which would have to be settled by the committee, but this is sufficient to show you the basis of the line of action which it is proposed to-day to ask you to adopt and support. If I am not detaining you too long, I should like to reply as briefly as possible to one or two objections that have been made to this plan.

One is, that by it you legalise by Act of Parliament all existing disreputable practitioners. Granted that you do; yet the evil of thus adopting them for a time is surely counterbalanced by the fact that you thereby put a stop to their career at some future date.

One whom you all know well—one to whom you are all indebted for many useful additions to your appliances—Mr. Fletcher, of Warrington, has put the case so concisely, yet so much to the point, that I cannot refrain from anticipating the publication of his note in the Journal. He says:—

"The plan proposed appears to be the only practicable one, and the sooner it is carried out the better; it is like a dose of physic—good for the constitution, but not nice taking."

Again, as I wrote in the leading article of the August issue of the Journal—

"By the plan proposed intruders are not placed in a better position than they already hold. Search the Post Office and Local Directories; are we not there all alike classed as Dentists? from the Queen's Dentist to the ignorant lad who a short time ago was hired for a few weeks to clean the workroom of a well-known practitioner, on whose name he now trades. What need, then, to cry out now? The fact is there; we cannot help it. By ignoring it we add to it daily. Admit it, then, frankly; register it—and kill it."

Look, for instance, at the list of T's in the London Post-Office Directory, and let any objector take the trouble to investigate the position and antecedents of the names of those who compose that list, and I cannot but believe they will see the force of these observations. Another objection made is that the scheme is weak, because it does not prevent unregistered persons from

practising. I grant it does not; but do not condemn the whole scheme on that account. No plan will ever accomplish that. We must be satisfied to recognise existing rights up to the present time, and jealously guard all entrances to the profession hereafter by any but qualified men.

Again, it has been questioned whether it is possible, even by Act of Parliament, to enact that existing practitioners shall be prevented from recovering their fees in a court of law unless they are registered. This is one of the questions that a committee will have to ascertain and settle. I can only tell you that on the occurrence of this idea to my mind I at once went to the Medical Registration Office in London, and there ascertained that in the case of the medical profession all existing practitioners were made subject to a similar law, therefore I do not see why Dentists could not be treated in the same way. I have here the clause in the Medical Act referring to this question; but, truly, I should keep you here all night were I to endeavour to reply to all the objections raised; and as there are many gentlemen present who desire to address the meeting, gentlemen whose opinion we shall all be glad to hear, it would be unfair to them for me to detain you much longer. I must therefore beg you to look for further reply to objections in the future pages of the "British Journal of Dental Science;" and I most earnestly beg that all who have any objections to make, any suggestion to offer, will write promptly and freely to that Journal, and then an endeavour may be made to satisfy each one on the question he raises. Of course by suggesting that objectors should write to the Journal I am far from desiring to stop them from speaking now, but I fear that in most instances the reply will have to be postponed, as, if we were to-day to enter into questions of detail, our task would be endless; I therefore would venture to suggest that we confine our attentions to-day as much as possible to the resolutions that will be proposed to you. Discuss *them*, whether they shall be adopted or not, as they are read to you, or in any amended form your wisdom may suggest.

Before I sit down I would briefly allude to the degree in which the matter we have had to discuss affects the public. As matters stand now they have no means of distinguishing between the legitimate, properly educated Dentist and the ignorant pretender, who upon the strength of a brief instruction in the rudiments of vulcanite work sets up a large brass plate, emblematical of his own brazen impudence, and dubs himself Surgeon-Dentist. If, as in other countries, no one was permitted to practise in the United Kingdom as a Dentist without possessing a diploma, it stands to reason that the public would have a better chance of obtaining proper advice and treatment than now, when the very servant of the Dentist is free to establish himself next door with the usual brazen announcement—"Surgeon Dentist." I am far from saying that diplomas would entirely guard the public from quackish practices, but I do say it would considerably lessen the extent of the mischief, and it is for the protection of the public from the sufferings entailed by the unskilful treatment of ignorant men, quite as much, nay *more*, than for our own purposes, that we need an appeal to Parliament. Parliament would never legislate for the benefit of one class alone, but I feel sanguine that if it can be shown to it, how detrimental to the public welfare is the existing condition of our profession, no difficulty will be experienced in carrying our point.

I have heard much since I have been here upon the necessity for "protection," and to a certain extent I have begun by appealing to your own interest in the matter, but I pray you now to take a wider, more unselfish view of the question, and, whilst keeping still in mind the principle of protection, let it mean the protection of the public. By consulting the welfare of that public we cannot fail to benefit ourselves.

I feel satisfied that if the true purpose and bearing of this meeting were generally known we should have at our command the sympathy and cordial support of the whole community.

Gentlemen, I should not presume to come before you in so prominent a position did I not know that the general principles I have endeavoured to inculcate are supported by my professional friends and seniors in London. The moment I received a very general expression of desire that I should occupy this chair I made it my business to ascertain the sentiments and secure the co-operation of those whom we have every reason to look up to as the heads of the profession.

Unfortunately my time was short. I had only two days at my disposal, and the majority of the London practitioners had left town for their holiday. Nevertheless, I am proud to say that I am authorised to assure you of the sympathy and material support of Mr. Tomes, Mr. Saunders (who always advocated more liberal measures than was first thought wise), Mr. Parkinson, Mr. James Smith Turner, and Mr. Forsyth, who will subscribe five guineas each to a fund to meet the expenses that must necessarily attend such a movement as I hope you will enable me to inaugurate to-day. I am still more proud to be able to announce to you that Mr. Tomes has, at my request, which I am sure you will second, consented to act as chairman of any suitable committee that may ultimately be formed. And Mr. James Parkinson, the representative of five generations of Dentists, whose name is familiar to you all, has kindly consented to take up what I hope you will unite in making the laborious duties of treasurer. Of course, the permanent appointment of those gentlemen must rest with the committee, but I should imagine there will be little doubt as to what your unanimous wish will be.

Now, as to the formation of that committee. I am sure you will feel that it would be most unwise to attempt to form any committee which will have such important and delicate business to transact, upon the unconsidered impulse of the moment. It will, I believe, be suggested to you that the committee shall be formed on a plan that on a former occasion was found to act so well. The scheme is detailed in the August issue of the Journal, but as you may not all have seen it I will briefly state that it is proposed that on the receipt by the Editor of the names of one hundred subscribers a list of those subscribers will be forwarded to each one, and their votes taken, as before, for the gentlemen they wish to represent them.

You may rely upon it that in the formation of any such committee due place will be given to a full and proper representation of the whole country, I should say of the United Kingdoms. I know that there is a strong feeling in the country that our London brethren do not sufficiently consider the interests of their provincial friends; but I do most earnestly assure you that that is an entirely mistaken view, and in this general question especially, there is on the part of the gentlemen I have seen the most loyal desire for the co-operation and support of the country practitioners. It is to embody that feeling that I have come amongst you, bringing with me the assurance of support from, it is true, only a few eminent London practitioners, but they are so essentially representative men that I feel confident they will be followed by the great majority of the London practitioners.

Gentlemen, I might remind you of the lead Manchester has taken in important questions in past times. I might point a moral from the view of your great factories, wherein an important part of the labour is to remove from your cotton, as I hope you will do from your profession, sundry small imperfections and "specks," as I find they are technically called. But you are practical men, and as such I will not further detain you from the business you have now in hand than to thank you for the kind patience with which you have listened to these my opening remarks, and if you feel, as you must, that I have left numerous points untouched, there is infinite ability among you to supply my deficiencies, and you have already shown me such kind feeling, that I am sure you will accord me your forgiveness for them.

MR. DENNANT, on proposing the first resolution, said he had been entirely surprised into his present position. He had no idea when he entered the room that he would be expected to propose a resolution. It would have been much more appropriate if one of the local men had occupied his place; but some friends, he believed, had been kind enough to say that he had written a letter which had stirred up a little feeling on the subject, and they thought it would not be unbecoming on his part to propose a resolution. They were all interested and occupied in assisting to protect and perfect the organs of speech, but he very much questioned whether by any stretch of logic they could construct a syllogism which would prove that they ought to be good speech-makers. He, for one, felt out of his element when speaking, and he knew that he was not alone in this. It gave him great pleasure to come from Brighton to the north to meet his northern brethren in the great city of Manchester. In the south they knew how to appreciate their public spirit, their energy and power, in leading great movements; and it was not at all unfitting that they should start a movement of this kind in Manchester. He was very pleased to come and extend to them, as far as he was able to do, the right hand of friendship. He understood they were met as a company of gentlemen, knowing no professional distinction, but animated by the desire to do the best they could for their profession, their pupils, and their children. Therefore it was that he had with very great pleasure taken the journey to Manchester to meet them. It was also a very great pleasure to him to support Mr. Charles James Fox as Chairman, and to witness the reception he had met with. He was quite sure no man deserved more at their hands than the Editor of the "British Journal of Dental Science." That gentleman had struggled on with the Journal through years of hard labour, and had endeavoured to make it what it ought to be, and what it would be if they all did their duty—a high-toned professional journal, and he hoped that with increasing education they would lose their diffidence, and be more ready to contribute their thought and the results of practical experience to the Journal, and thus make it a greater source of usefulness. The resolution which he had to propose was not of too definite a character; and he was rather glad of it, because he thought that to begin well they must have a centre, and their influence must radiate from that centre. They could not commence exactly from the outside and work inwards. The resolution was as follows:—"That it is desirable a committee be formed to see what steps can be taken to arrest the continued influx into the profession of illegitimate practitioners by the adoption of the principles of registration and compulsory education." The admirable address which the Chairman had given had disclosed to them his Mr. Dennant's thought and judgment on this question, and he might say—and they might know it from what they had read in the Journal—that his sentiments were entirely in accord with those expressed by the Chairman. He believed that the best way for this object to be attained was by a sub-division of labour and as perfect a representation of thought as can possibly be accomplished. He might be premature in his views, but he only threw out this remark as an expression of the thoughts moving in his own mind, for he had not had an opportunity of consulting Mr. Fox to know if he agreed with him on this subject. It seemed to him that it would be well to form a number of centres throughout the country for working committees. It was most important that the whole of England should be represented; and, in fact, all the largest towns and districts should be well represented by local committees, for the purpose of carrying out the views propounded by the central committee. But Scotland, Ireland, and Wales ought also to be represented; and from John O'Groats to Land's End

they ought not to have a single voice saying "You have not represented me." Above all things they wanted a perfect representation of thought, so that the movement should work harmoniously, and have such force and power as to command itself at once to heads of Parliament, so that they might soon get their wrongs redressed. They might depend upon it that a reformation like that contemplated, resulting as it would in a great public good, and unfettered by party politics, would be heartily received and dealt with in the House of Commons. As to the working. His idea was that from local committees they should elect representatives for the central committee; that the central committee might not be so much limited in number, but that from the central committee should be elected a smaller working committee. For, after all, they would find the work would be done by the few and not by the many. The larger committee would be wanted, however. The views of the smaller committee should be constantly laid before them, either by circulars or journals, and so on, and thus the representation of thought might be fully carried out. They knew perfectly well—it was a matter of history—how the Medical Act was worked; and, so recently as 1868, the pharmaceutical chemists had done for themselves what they (the Dentists) now proposed to do. No man now has it in his power to establish himself as a chemist unless first of all he is approved and fitted by due and proper examination. He had pencilled down a few clauses of their Act for the sake of showing that, if they chose, they could use them by the substitution of the word "Dentist" for "chemist," and this would convey something like an idea of what they proposed to ask Parliament for. For example, here was a clause, "From and after a day named, any person not already engaged in the practice of Dentistry, should before commencing be duly examined as to his practical knowledge, and that a register should be kept." Another clause would be to the effect that, "From and after — it will be unlawful for any person to practise the profession or calling, or assume the title of Dental Surgeon, Surgeon Dentist, or Dentist within any part of Great Britain unless such person be a Dentist within the meaning of this Act." These clauses, it appeared clear to him, would protect them and their children as well. He did think they had a duty to their kith and kin, and a duty to those spending large sums of money to place themselves in their hands as pupils. It was not enough for a man to say "Well, I have gone through life without Acts of Parliament, and saved a little money, and I don't intend to trouble myself about a movement of this kind: It does not concern me; it won't affect me. I am going to take life easily." That was one sentiment, but he did not think it was their sentiment. He believed they were happier men when they lived for a good purpose, and impressed as far as they could the stamp of their character on the age in which they lived. Their area of action might not be large, but still there it was. They owed it as a duty to the profession to have a gentleman-like bearing, thorough efficiency, and honesty of character; they had a duty to perform to those coming after them, and the kindest and best thing they could do for them was so to act as to help on the general elevation of the profession, and to make the lives of their children more pleasant, if possible, than their own had been. They knew how it had fretted their spirits sometimes in the earlier struggling days of professional life when they had to do the respectable thing and wait for patients to come, to see the man with advertisements and show-case making a loud noise and attracting to himself a golden harvest. However, if they did that which was right they were perfectly sure to have the respect of their fellow-men and the approval of their own conscience. And then it was something to feel proud that they had not disgraced their profession. He

could express his thorough conviction, from what he knew of the London men, that the sentiments uttered by Mr. Fox that day would be thoroughly endorsed by them. There would be no cold water thrown upon the movement. Let them remember that there was work for every one—petitions to be promoted, professional brethren to be influenced, work of this kind and that, so that no one need be idle—but work in such a cause will be as the seed time to a glorious harvest in ensuing years. He hoped that they would be as one body—London not acting without Manchester, and Manchester not without London; and as time went on he hoped to find a large central committee—a united band helping in this great work of stamping out empiricism and raising the status of Dentistry. In conclusion he might say that he had recently taken his summer holidays, and had, wherever it was in his power, called upon gentlemen eminent in the profession, and he had not heard one word adverse to their proposition. Indeed, it had met with nothing but approval from every lip. The nearest approach to anything like cold water was this answer, "Well, the principle, no doubt, is right, and it must come some day." If the principle is right, and it would come some day, let them see that they had a hand in it; let them put their shoulder to the wheel, for the sooner it came the better.

Dr. DAVID WORMALD, in seconding the resolution, said he certainly felt very diffident in attempting to address such a large meeting, especially after the able address given by the Chairman and the excellent speech just delivered by Mr. Dennant. He felt that a small luminary like himself ought to have been put in front of a great sun like Mr. Dennant, so that he might have had a better chance of shining with what little he had to say. However, they all knew that the Chairman came from London, and Mr. Dennant from Brighton, so that a Lancashire man might have an opportunity of saying a word. They in Lancashire were noted for being straight up and straight down; and in this movement, if it was taken up with spirit and in the charitable and kindly manner in which it had been put before them to-day, there was not the slightest doubt that ultimately the scheme would be carried out. This would not only be a boon to the profession at large, but to every individual connected with it. There was no one, no matter what his position or *locus standi*, no practitioner, whatever his degree of prosperity, who does not feel satisfied that the present condition of the profession is not the correct one, and had a desire to improve it. If this was the case, then he would ask every one who had listened to the address so able and comprehensively given by the Chairman whether it was not time to act at once. They must have a basis of action, and that he considered had already been plainly and simply put before them. It was the registration of all Dentists now in practice. They already had a Dental Hospital in London which was quite able to turn out qualified practitioners. The curriculum was such as every man should be ambitious to pass through, but they wanted protection for those who did pass through. He would not repeat what had been said by the Chairman and Mr. Dennant of the difficulties under which they at present had to practise; but if all present desired a better state of things they must educate the people to a higher appreciation of Dentistry as a profession. If this was done they would soon have more highly trained and better educated practitioners, as there would be some guarantee for the labour, time, and money spent in passing through the curriculum. Although he believed the practitioners in the south of England did not know the real difficulties of Dentistry in the northern provinces, yet he was satisfied this movement was the remedy for the evil if they would only combine together to make it a success. He

hoped that all present, whatever their individual feelings might be, would see that they had now the remedy in their own hands. He did not see any reason why they should not have in their ranks in a few years' time more educated and talented gentlemen, who would not only be a credit to the profession, but would protect it and hand it down to posterity as a greater blessing.

Mr. CRAPPER supported the resolution, and expressed his pleasure in seeing such a large meeting. Being one of the early promoters of the scheme, and having co-operated with the gentleman who had called the meeting—to whom he was sure the thanks of every one present were due—they would excuse him saying a few words on the subject. In the first place he cordially endorsed the resolution. He was very pleased to see Mr. Fox occupying the position he then occupied. Some might say, "Well, it would be better if we were represented by some one in Manchester;" but he thought it was a higher compliment that they should be presided over by a gentleman like Mr. Fox, who is so well known, not only in the United Kingdom, but by Dentists all over the world. He was glad to find Mr. Fox associating himself with a measure which, if carried out, could not fail to be of the greatest possible benefit to their interests, not merely in the time present, but also to their children when they came to occupy their positions. It was also very pleasing to know that there are gentlemen, leading members of the profession in London, whose names had been announced that day as having decided to support the movement, not only by their social position and personal influence, but also to assist with their money. If these gentlemen were not present, they knew from what the chairman had said that their spirit was with them. He had had the pleasure to attend the Dental Hospital in London on the last occasion prizes were awarded to the successful students, and there saw Mr. Tomes, Mr. Rogers, and many other of the most eminent men of the day. The meeting was presided over by one of the most eminent surgeons in London; he had only to mention the name of Savory for them to know that he was so. This showed that gentlemen of influence in London were taking part with them. He was quite sure a gentleman occupying the position of Mr. Savory would not have condescended to take any part in the matter if he had not had a very high opinion of Dentists. He was therefore glad to find the profession making great progress in London, and that its influence was beginning to extend to the country.

They must now attempt to do something for themselves, otherwise those in London would not give them their support. The measure before them was one which should be supported by every Dentist in the United Kingdom. It is not for one or two or more to come forward and say they would give five, ten, or twenty guineas; but let every one consider it his duty to do all that he possibly could do. He should have pleasure in subscribing five guineas to the cause, and would not hesitate to give even fifteen or twenty guineas if more was required afterwards. When it had come to pass that they had done something for themselves, then he hoped the time would not be far distant when they would have the registration as suggested by the Chairman, Mr. Dennant, and other speakers. If something was done in this way they would find the medical men in Manchester and other large towns would feel that they might take a similar course to that of the gentlemen in London, and give the movement a helping hand. He hoped that in the course of time they would have a good Dental hospital in Manchester and in other cities and large towns. This would, of course, follow if they only made a start. He considered they had made an excellent start to-day, and he did not think there was any one present who would not be prepared to say he was ready to support

the cause, and many absent friends would be pleased when they knew what had taken place, and be delighted to do their best in the matter. They would also find that the medical gentlemen in London who are doing good to the profession would co-operate with them, and not consider it derogatory to their dignity to help forward a profession which at the present time was held in too low an estimation.

Mr. SHILCOCK, of Cannes, said he appeared before them in the double position of a practitioner and at the same time as a Dental student trying to qualify at the Dental Hospital of London for his diploma. He had been engaged for the last four or five years in the south of France, and although he had a very good practice and all he required, he should not rest satisfied till he had the degree of L.D.S. from the Royal College of Surgeons. In France and other countries on the Continent, Dentists were not allowed to practise without a diploma of some kind. He was in Geneva four years ago, and wished to pass the summer there combining pleasure with business. He tried to practise, but after he had been in the place a short time the authorities came down upon him and wished to see his diploma, which, of course, he had not got. They were very strict indeed in every canton in Switzerland. There they were obliged to have a diploma. It was the same even with chemists; and they must have these diplomas, not only for the country generally, but for every individual canton or department, even though it was only a few miles away. If the authorities were so strict abroad they ought not to be behind them in England. As a young member of the profession he was glad to see this movement and wished it every success. There were a great many old practitioners present who might not reap the benefit of the harvest, but the younger ones would reap it, therefore he thought the movement worthy of their best support.

After a pause the Chairman said that, if any gentleman had any amendment to propose to the resolution, now was the time to do so, but no response being made, the resolution was formally put as follows:—

Proposed by Mr. Dennant, of Brighton, seconded by Dr. David Wormald, of Southport—"That it is desirable that a committee be formed to see what steps can be taken to arrest the continual influx into the profession of illegitimate practitioners by the adoption of the principles of Registration and Compulsory Education.

The resolution was carried unanimously and with applause.

Mr. FLETCHER, in proposing the second resolution, said it was not necessary for him to add much to what had already been said; but there were two points which might as well be brought before their notice. The first is that this proposed introduction of everybody would not, perhaps, be such an evil thing as many at present thought, because it was very likely indeed that it would polish up a great many, and improve the general tone of those whom they were now, perhaps, inclined to reject. The evil would not be all evil. Another point he wished to speak about was the possibility of forming a local centre in Manchester. That seemed to have been entirely overlooked. They might as well get these things into their minds, not with the object of making a definite arrangement at present, but by way of calling attention to the fact. Now that they have met and were perfectly at liberty to know each other for the future, he thought it was more possible to form a friendly union, perhaps not altogether with the object of reading scientific papers, which, to his mind, had proved a failure in the only local society in existence, for the dearth of papers was specially marked; but it was well to mention that a local society is possible, even if they did not do a great amount of work. It involved a question of mutual friendship. He hoped this notion would revolve in their minds and come out the right side up. The resolution he had to propose was "That Mr. Fox, as Editor of the 'British Journal of Dental Science,' be re-

quested to take steps to secure the formation of a committee upon the plan suggested in the leading article of the Journal published in August, 1875." That committee would, of course, not be a local one, but, as he understood it, would include all the Dentists of Great Britain and Ireland. As a tail to the committee he suggested the formation of local societies, which he thought was the original idea in calling this meeting.

The CHAIRMAN observed that he entirely endorsed the idea of local societies, and also thought it was wise on Mr. Fletcher's part just to draw attention to it with a view to advising them to have another meeting for that purpose. But they had a number of practitioners amongst them from a considerable distance, and he was afraid they could not then take that question into consideration. He might also point out that it is the distinct intention of the promoters of the gathering that there should be not only a local committee in London but local committees in each town to co-operate with them. He entirely approved of these local societies, and wished to see them, not political ones, but formed throughout the kingdom for the discussion of interesting subjects.

Mr. STEWART had great pleasure in seconding the resolution. He thought that they should confine themselves to the matter before the meeting. He, however, quite endorsed the idea of local societies or British Dental Societies unconnected with either London or Edinburgh.

Mr. HEADRIDGE spoke in favour of the resolution, and remarked that it was a favorable time for Mr. Fletcher to make his suggestion. It was necessary for the members of the profession in this part of Lancashire to be united for the object of furthering the view of the meeting, and that they should send representatives up to the London Committee. He expressed his pleasure with the manner in which the meeting had been conducted, and should be glad to facilitate the object as much as lay in his power.

Dr. W. H. WAITE, of Liverpool, said—Mr. Chairman, there is an old heathen proverb that says "The gods help those who help themselves." The Dental profession in this country has been waiting for over fifteen years (I speak within my own knowledge)—waiting wistfully, like Mr. Macawber, for "something to turn up." At one time we were looking anxiously in the direction of the Odontological Society, hoping that it, having so successfully organized the profession in London, would turn its attention to the provinces; and by the establishment of local branches, or some other means, make itself in fact, what now it is but in name the Odontological Society of Great Britain. I confess, sir, to having felt considerable disappointment when, some years ago, that society resolved for the future to eschew the politics of the profession and confine itself to the discussion of purely scientific subjects alone. I believe that determination has materially delayed our progress, and just in proportion as we have lost time so that determination may be said to have contributed to the present deplorable state of things. The Odontological Society failing us we have been casting about looking for a leader—some one who had not only the ability, but influence and agency at command to enable him to secure the co-operation of brethren throughout the country; and if you will pardon my saying so in your presence, sir, I think we have at length found such a leader in your worthy self. You have discovered the ability, in drafting a very suitable scheme; you have the influence and agency at command, through the medium of the 'British Journal of Dental Science,' and I trust, sir, you will be spared in life, and health, and strength, with vigour of mind and body, to see that scheme fairly inaugurated. But, gentlemen, a leader must have followers, faithful and true, earnest and zealous, ere he can lead his cause on to victory; and so I rejoice with all my heart at this gathering of the tribe here to-day. We must not forget, however, that we are indebted for this meeting to our worthy brother, Mr. Sidney Wormald. He has displayed the courage most of us lacked, and in taking the bull by the

horns has been instrumental in bringing about a great fact in the history of the Dental profession. After all, our main dependence must be on the personal interest and active sympathy of every individual who desires the welfare of our calling ; and if you will bear with me for a minute or two I would like to point out one or two ways in which each one here may do something to help on the cause. I would say, first, let each of us determine to be that which we desire our profession to be. Let us see to it that we never *ourselves* indulge in those practices which we are ever ready to condemn in others. Let us take care that our knowledge is constantly increasing, and kept up to the times ; our work, whether operative or mechanical, as good as we can possibly make it ; and our deportment, at all times, such as becomes gentlemen—members of an honorable and skilled profession. Thus, far more than by legal enactments, we shall secure the appreciation and respect of our fellow-men. Again, it is very desirable that we all give our minds to the consideration of those matters that may be brought before us by those whom we may appoint to manage our political action. Do not let any one go home from this meeting to sit down listless and indifferent, leaving some one else to do all the thinking. Let us each do our part. "In the multitude of councillors there is wisdom ;" let every one be up and doing his share in the matter. And there is much else to be done. There are around us scores of men pursuing our calling in offensive and improper ways, many of whom know no better. Why should not we try and enlighten them ? We can gain nothing by ignoring them ; we may win some, at any rate, to a better course by entreaty and kindly influence. Then there is the great mass of the people, who, as a rule, are in utter ignorance concerning us ; they do not know a respectable man from a quack ; they do not know good work from bad ; they do not know either the value of the natural organs, or of the materials we employ in restoring or replacing them. On all these points the public need continual instruction from us ; so far, at least, as to enable them to judge for themselves as to whom they should consult. I feel very strongly that the people have been kept too much in the dark, in the past ; hence their present ignorant credulity, which makes them so easy a prey to the "sharks." One more point and I have done. Gentlemen, we must be *united* in this enterprise. There are some amongst us who have given much thought to the subject, and who have perhaps, formed plans and details which appear to them essential to success. Now, it is a clear case we cannot all have our own way ; our wisdom will be exhibited if we cultivate a spirit of conciliation and mutual forbearance for the sake of *unity of purpose*. Our interests are identical, whether we reside in the metropolis or in some rural district. Let us go forth, hand in hand, shoulder to shoulder, determined to know no distinction but the honest rivalry as to who shall do most to secure a speedy, just, and complete recognition of our calling among the learned professions of the land. We are sufficiently numerous, we are sufficiently intelligent, we are sufficiently necessary to the common-wealth, and, I may add, we are sufficiently wealthy to demand from the legislature that sympathy and recognition which we seek. Should we fail to obtain it on terms honorable to ourselves and beneficial to posterity, we shall deserve the demerit such a refusal would bestow. But, gentlemen, we shall succeed if we only remain united in hand, and heart, and head.

The CHAIRMAN observed that Dr. Waite had spoken of the desirability of progressing in a unanimous manner. He knew no one who had shown or given better proof of that desire than Dr. Waite had on this occasion, because that gentleman's mind was fixed on the formation of local societies, as were several others present he happened to know, and he had shown considerable forbearance in keeping them to the point before the meeting.

The CHAIRMAN then read the resolution and invited dissentients to address the meeting, but no one rising, after a pause

The second resolution was put and carried unanimously, as follows : Proposed by Mr. Fletcher, of Warrington, and seconded by Mr. Stewart, of Liverpool, "That Mr. Fox, as editor of the "British Journal of Dental Science," be requested to take steps to secure the formation of a Committee upon the plan suggested in the leading article of the Journal published August, 1875."

The CHAIRMAN said they had imposed a very onerous task upon him, but he appreciated so highly the confidence they seemed to repose in him that he would accept the duty and do his very utmost to carry out their wishes and secure a fair representation of the country on the committee, and he felt that in this he should have the entire co-operation of his London colleagues.

Mr. HUET, said he had been solicited to lay the third resolution before them, and when it had been read he thought they would come to the conclusion that it was thoroughly business like. Their object to-day was to go in for compulsory registration and education, and to bring about such an event would be impossible without the sinews of war—cash. To take a bill into Parliament would cost, at least, from £1200 to £1400, so that it was necessary they should all join together and have the support of all who had the subject at heart and felt impressed that it is the one thing needful. They must give practical proof of this something after the style of the Quaker, who, when he heard some friends sympathising on the misfortune of a mutual friend, one saying "I am very sorry," and another saying "I am extremely sorry," and after going the round in this way, the Quaker, who had been listening and watching, said, "Well friends, I am sorry to the tune of £5, how much are ye sorry?" At the suggestion of Mr. Fox a card had been struck off, so that the gentlemen present desirous of subscribing might put their names down before the meeting was over, and he hoped they would do this to a liberal amount. The resolution he had to propose was, "That a subscription list be opened to defray the expenses of such a committee in making an appeal to Parliament next session on this subject."

Mr. W. J. NEWMAN had much pleasure in seconding the resolution. He was sure from the exhaustive speeches they had heard that afternoon it would ill become him to trespass longer on their time. All he could say for himself individually was that he gloried in the object before them, and would do all in his power with the assistance of his brother practitioners in Liverpool in raising as much money as possible, and otherwise endeavouring to promote the scheme of their worthy chairman.

The CHAIRMAN said that, although it was scarcely his place to do so, he ventured to submit, before putting the resolution, that the words "next session" should be omitted, as there was a great deal of work to get through, and it might not be possible to accomplish it in that time.

Mr. HUET suggested that the alteration should be "next session, if possible," and this being agreed to, the resolution was put as follows and carried unanimously :—

Proposed by Mr. F. Huet, of Manchester, and seconded by Mr. Newman, of Liverpool, "That a subscription list be opened to defray the expenses of such a Committee in making an appeal to Parliament next session, if possible on the subject."

The CHAIRMAN intimated that the £150 already subscribed was almost exclusively composed of five-guinea donations, but there were some guinea donations of which he hoped to see many more. He was also in possession of the names of two gentlemen who would subscribe twenty guineas each to the fund provided eight others were found to join them with twenty guineas each.

In calling upon Mr. O'Duffy to propose the next resolution, the Chairman complimented that gentleman on the public spirit he had shown in coming all the way from Dublin.

Mr. O'DUFFY said he regretted very much indeed he was not gifted with the usual amount of oratory that his countrymen possessed, but the resolution entrusted to him he was glad to see needed very few words on his part to commend it to their attention. He thought they would be wanting in feelings of gratitude if they were to separate that evening without recognising the great good that had been done to

the profession and what was likely to accrue from to-day's meeting. He was sure they would all agree with him, when they considered the important results which must proceed from that meeting, that they owed a deep gratitude to the originators of it. He alluded to Mr. Huet and Mr. Wormald. He therefore proposed—"That the thanks of this meeting are due to Mr. Sidney Wormald and to Mr. Frank Huet for the pains they have taken in bringing about this meeting."

Mr. KYAN, with great pleasure, seconded the resolution: the more so as this was the first occasion on which he had had the pleasure of meeting those gentlemen. He felt that a debt of gratitude was due to them for stepping into the breach where other men had failed to present themselves. The movement, he thought, had now commenced in earnest. The matter had been allowed to rest in the hands of the London gentlemen for sixteen years. Let them now see what they in the country could do—whether they could succeed where others have failed, for in fact the position they were till now placed in was this, they had been enacting the play of Hamlet in the absence of the chief character, Hamlet; in other words, practising a profession without the necessary qualification. For the future he hoped it would be compulsory on all Dentists to possess the proper qualification. It would then be an honour to possess it, whereas now its possession must simply be regarded as an ornament.

The CHAIRMAN said he was sure they would unanimously pass this resolution. It had been a very difficult matter to get men to move at all on this question. There are some grumbler who, whatever movement took place, were always ready to call out that it had not begun in the right quarter; but all he could say was, why had it not been begun in what they considered the right quarters? Mr. Huet and Mr. Wormald were eminently deserving of the thanks of the meeting, for they had not only brought it about at their own cost, but had throughout shown an example of unselfishness of spirit and consideration for the feelings and opinions of others, which, if followed, would conduce greatly to the welfare of the profession. It was with great pleasure he put the resolution to the meeting.

Proposed by Mr. O'Duffy, of Dublin, and seconded by Mr. Kyan, of Preston, "That the thanks of this meeting are due to Mr. Sidney Wormald and to Mr. Frank Huet for the pains they have taken in bringing about this meeting."

The resolution was carried unanimously with prolonged applause.

Mr. HUET said Mr. Wormald had asked him to return thanks for both for the kind way in which they had received the resolution. Last October, when he was present at the distribution of prizes at the Dental Hospital of London, Mr. Sydney Wormald expressed to him his great dissatisfaction with the existing state of things in the Dental profession. He perfectly agreed with him, and said that although he could not help admiring the way the Dental business was carried on at the hospital also the thorough examination the students had to go through before possessing the Dental diploma—nevertheless, without protection there was very little inducement in the present state of affairs for a father to spend money to allow his son to go through his study in London for two or three years. Mr. Wormald said to him, "Supposing we start in this matter?" "Well," he replied, "if you help me I shall have great pleasure in helping you." They put their heads together, sent out that first letter, and encouraged by the responses received from various quarters, they pushed on, and at last succeeded in leaving an impression on the leading London men that if they did not move in the matter the practitioners in the provinces would take it in their own hands. The Chairman approving of the course adopted, had favoured them with his presence on this occasion. He again returned his best thanks for Mr. Wormald and himself. He assured the meeting that they felt they were doing what was right and proper in endeavouring to obtain Compulsory Registration and Education.

The CHAIRMAN having received some of the subscription cards, announced that over £200 had been subscribed. He also stated that the two gentlemen he had alluded to as ready to subscribe twenty guineas if eight others could be found to subscribe a similar amount had been induced to withdraw the restriction and to subscribe their twenty guineas each without restriction. He was sure they would say they deserved their thanks when he named Mr. Sidney Wormald and Mr. Frank Huet as the gentlemen in question.

Mr. WORMALD says he was desirous of expressing his sincere thanks to them for the very cordial manner in which they had responded to the call, and for the very kind manner in which they had expressed their thanks to him. He desired no

better thanks than their response, and the fact of such eminent gentlemen coming to meeting, as well as their kind friend, Mr. Charles James Fox, coming to preside over them, was sufficient thanks for all he had done. Ever since he had seen the paper read by the Chairman at the Odontological Society in 1871 he had never deviated from his course in working for this meeting. That had been his object throughout, and he had never ceased to advocate the cause to every Dentist he met with.

Mr. MARSH proposed a vote of thanks to the Chairman, and asked to be allowed to say that he had experienced great kindness at his hands when a student at the Dental Hospital of London. Mr. Fox was a gentleman to whom he had found he could always go for advice in matters of difficulty. He was a thorough good friend to the profession at large, by his work in the Journal and in many other ways.

Mr. CRAPPE has great pleasure in seconding the vote of thanks, for he felt quite sure that the large and influential attendance was in a great measure owing to the fact that it had become generally known that Mr. Fox would be present. The motion was carried with acclamation.

THE CHAIRMAN, in responding, said he told them when he commenced his remarks at the opening of the meeting that he felt heavily the responsibility cast upon him. He could not tell them the weight that had been taken off his mind by the unanimous and cordial way in which they had accepted the resolutions put before them. He felt confident that their London brethren, when they saw what the meeting had done, would help them in every way in their power. He could also repeat the assurance he had given them before, that he was satisfied they would not neglect in any way the interests of provincial practitioners, and that there would be a proper representation of the country in any committee that might be formed. That meeting had not only relieved his mind, but had excited in him the liveliest feelings of gratitude by the warm and hearty reception with which they had honoured him. He felt amply repaid for any little trouble taken, and only hoped they might live to see the accomplishment of the measures proposed that night. He would not detain them with any other remarks, but just to say that he had received many cordial letters of support too numerous to read. He must, however, mention one from Mr. Hepburn, of Nottingham, who made use of the apt remark that "we have got to swallow the leek some time or other, and we had better swallow it as quickly as we can." That was similar to the way in which Mr. Fletcher wrote. In reference to what Mr. Shillcock had stated as to the laws of foreign countries, he would mention one instance which came to his knowledge recently. He had a pupil, Mr. Bruce, who had taken three diplomas in England, viz., M.R.C.S., L.D.S., and L.S.A. He was going to practise in Chili, and before he could extract a tooth there, he would, notwithstanding all the time honoured diplomas he held, have to pass another examination in his native country. If these restrictions were imposed elsewhere, he (the Chairman) did not see why they should be behind-hand in England. In looking over the "Guide to Manchester" the other day he noticed that Manchester had distinguished itself by being the first to enter into the contest between the Royalists and Republicans in the time of Charles I. In fact, the first fight took place somewhere near, and the first notice of such a movement reached Parliament under the heading of "Terrible news from the North;" they were not now, he was thankful to say, going to begin a civil war, but to prevent one as far as their profession was concerned. The London men were in unison with them, and somewhat waiting to see what course they took at this meeting, and now he felt he could go back happy to London and announce "Glorious news from the North." The men of the North are anxious for peace and unity with the London men. He again thanked them for their cordial support in helping him to redeem his promise to their brethren in London, that he would not commit them to anything they could not support.

The CHAIRMAN then retired, and the assembly broke up amidst loud expressions of satisfaction at the happy result of the meeting and the cordial unanimity which prevailed.

Gentlemen are requested to forward their subscriptions to the Hon. Treasurer, Mr. James Parkinson, 86, Sackville Street, Piccadilly, London, with as little delay as possible, so that the voting lists for the General Committee may be printed and issued to the Subscribers.

Educational Department.

THE information contained in the following pages is intended for those who propose taking the Diploma in Dental Surgery of the Royal College of Surgeons of England. Those who prefer seeking also the Membership of the College will obtain all the necessary particulars as to Hospitals, &c., in the Students' Number of the MEDICAL PAPERS for the 11th inst.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.**REGULATIONS RELATING TO THE DIPLOMA IN DENTAL SURGERY.
EDUCATION.**

Candidates are required to produce the following Certificates:—

1. Of being twenty-one years of age.
2. Of having been engaged during four years in the acquirement of professional knowledge.
3. Of having attended, at a School or Schools recognized by this College, not less than one of each of the following Courses of Lectures, delivered by Lecturers recognized by this College, namely:—Anatomy, Physiology, Surgery, Medicine, Chemistry, and Materia Medica.
4. Of having attended a second Winter course of Lectures on Anatomy, or a course of not less than twenty Lectures on the Anatomy of the Head and Neck, delivered by Lecturers recognized by this College.
5. Of having performed Dissections at a recognized School during not less than nine months.
6. Of having completed a course of Chemical Manipulation, under the superintendence of a Teacher or Lecturer recognized by this College.
7. Of having attended, at a recognized Hospital or Hospitals in the United Kingdom, the Practice of Surgery and Clinical Lectures on Surgery during two Winter Sessions.
8. Of having attended, at a recognized School, two Courses of Lectures upon each of the following subjects, viz.:—Dental Anatomy and Physiology (Human and Comparative), Dental Surgery, Dental Mechanics, and one Course of Lectures on Metallurgy, by Lecturers recognized by this College.

9. Of having been engaged, during a period of not less than three years, in acquiring a practical familiarity with the details of Mechanical Dentistry, under the instruction of a competent Practitioner.
10. Of having attended at a recognized Dental Hospital, or in the Dental department of a recognized general Hospital, the Practice of Dental Surgery during the period of two years.

N.B. The Students of the London Schools are required to register the above Certificates at this College; and special Returns will be required from the Provincial Schools.

Candidates who were in Practice as Dentists, or who had commenced their Education as Dentists prior to September, 1859—the date of the Charter—and who are unable to produce the Certificates required by the foregoing Regulations, shall furnish the Board of Examiners with—

A Certificate of moral and professional character, signed by two Members of this College, together with answers to the following inquiries:—*

Name. Age. Professional Address.
If in practice as a Dentist, the date of the commencement thereof.

Whether Member or Licentiate of any College of Physicians or Surgeons of the United Kingdom; and, if so, of what College.

Whether Graduate of any University in the United Kingdom; and, if so, of what University; and whether Graduate in Arts or Medicine.

The date or dates of any such Diploma, Licence, or Degree.

Whether Member of any Learned or Scientific Society; and, if so, of what.

Whether his Practice as a Dentist is carried on in connexion with any other business; and, if so, with what business.

Whether, since September, 1859, he has employed Advertisements or public Notices of any kind in connexion with the practice of his Profession.

The particulars of Professional Education, Medical or Special.

The Board of Examiners will determine whether the

evidence of character and education produced by a Candidate be such as to entitle him to Examination.

* N.B. In the case of Candidates in practice or educated in Scotland or Ireland, the Certificate of moral and professional character may be signed by two Licentiates of the Royal College of Surgeons of Edinburgh, or the Faculty of Physicians and Surgeons of Glasgow, or of the Royal College of Surgeons in Ireland, as the case may be.

EXAMINATION.

The examination is partly written and partly oral.

The written examination comprises General Anatomy and Physiology, and General Pathology and Surgery, with especial reference to the practice of the Dental Profession.

The oral practical examination comprises the several subjects included in the curriculum of professional education, and is conducted by the use of preparations, casts, drawings, &c.

Members of the College, in the written examination, will only have to answer those questions set by the Section of the Board consisting of persons skilled in Dental Surgery: and in the oral examination will be examined only by that Section.

A Candidate whose qualifications shall be found insufficient will be referred back to his studies, and will not be admitted to re-examination within the period of six months, unless the Board shall otherwise determine.

Examinations will be held in January and June.

The fee for the Diploma is Ten Guineas, over and above any stamp duty.

NOTE.—*A ticket of admission to the Museum, to the Library, and to the College lectures will be presented to each Candidate on his obtaining the Diploma.*

EDWARD TRIMMER, *Secretary.*

Dental Hospitals.

LONDON DENTAL HOSPITAL AND LONDON SCHOOL OF DENTAL SURGERY.

Dental Officers, and the Days and Hours of Hospital Attendance.

Consulting Physician.—Sir Thomas Watson, Bart., M.D.

Consulting Surgeon.—Mr. Campbell de Morgan.

Consulting Dental Surgeons.—Mr. Samuel Cartwright, F.R.C.S.; Mr. John Tomes, F.R.S.

	<i>Dental Surgeons.</i>	<i>Assist.-Dental Surgeons.</i>
9 a.m. Monday	Mr. Fox	Mr. Moon.

„	Tuesday	„	Underwood	„	Medwin.
„	Wednesday	„	Gregson	„	D. Hepburn.
„	Thursday	„	Coleman	„	Lane.
„	Friday	„	T. H. Harding	„	Bartlett.
„	Saturday	„	Hill	„	S. H. Cartwright.

Administrators of Chloroform.—Monday, Mr. Bailey, M.R.C.S.; Tuesday and Wednesday, Mr. Clover, F.R.C.S.; Friday and Saturday, Mr. Braine, F.R.C.S., at 9.30 a.m.

Dental House-Surgeon—Mr. Merson.

DEMONSTRATIONS.

The Medical Officers will make every effort to give Demonstrations to the junior pupils, on cases selected from time to time, every morning during the Lecture Session; and at the end of the Course, those gentlemen who have attended the Demonstrations to the satisfaction of the Medical Officers will be permitted to perform operations at the Hospital under the supervision of the Medical Officers and the House Surgeon. Those of the senior Students who can spare the time will also be very welcome to attend; but it is requested that the juniors whose names are on the list of the surgeons of the day will be allowed the best places for seeing the Demonstrations.

The Demonstrations will be given on Monday by Mr. Fox, at 9.15, and by Mr. Moon at 10. Tuesday, by Mr. Underwood, at 9.30, and by Mr. Medwin, at 10. Wednesday, by Mr. Gregson, at 9.15, and by Mr. Hepburn, at 10. Thursday, by Mr. Coleman, at 9.30, and by Mr. Lane, at 10. Friday, by Mr. Bartlett, at 9, and by Mr. Harding, at 9.30. Saturday, by Mr. Hill, at 9.30, and Mr. Hamilton Cartwright, at 10.

LONDON SCHOOL OF DENTAL SURGERY.

LECTURES.

DENTAL SURGERY AND PATHOLOGY.

Mr. Samuel Hamilton Cartwright, M.R.C.S., L.D.S.

Inflammation.—Its Nature, Pathology, and Symptoms. Its important bearing in relation to Dental Surgery. Various examples of its action in connection therewith. The phenomena of reflex pain and action explained.

The First Dentition.—Local and constitutional maladies occurring synchronously with that period. The effects of Struma, Syphilis, &c., upon Dentition. Diseases connected with the temporary Teeth. Their management considered in relation to the coming permanent Dentine.

The Second Dentition.—The chief forms of temporary and permanent irregularity. Their Causes and Treatment.

Caries, and Special Diseases of the Teeth and Tissues connected therewith.—Its Pathology in connection with various theories on the development of tissues. The Vital, Chemical, and Chemico-Vital explanations of decay. Its Treatment, constitutional and local. The operation of filling considered under all its different relations. Diseases of the Pulp and the surrounding tissues of the Teeth, and their treatment. Effects of Mercury, Rheumatism, Syphilis, &c., on the soft and hard structure connected with the Teeth. Necrosis. Exostosis. Absorption. Denu-dation. Salivary Calculus. Abnormal conditions of the Mucous Mem-

brane of the Mouth. Hypertrophy, Epulia, &c. Diseases of the Antrum. Dentigerous Cysts. Odontomes. Extraction of Teeth. Replantation.

Oral Surgery.—Tumours of the Maxilla generally considered. Dislocation and Fractures of the Jaw. Diseases connected with the Salivary Ducts. Necrosis and Caries of Bone. Hare-lip. Perforations of Hard Palate, Cleft Palate. Neuralgia, &c. Therapeutic action of drugs used in Dental Surgery.

These Lectures will be delivered on the mornings of Tuesday and Thursday, at Eight o'clock, during the months of May and June. Recent Specimens, Preparations, Models, Drawings, &c., will be used to illustrate the Lectures.

DENTAL ANATOMY AND PHYSIOLOGY.

(*Human and Comparative.*)

Mr. C. S. Tomes, M.A., M.R.C.S., L.D.S.

General Scope of Odontology.—General characters of Teeth, as to composition, form, position, &c.

The Dental Tissues.—Enamel. Distribution of, peculiar modification of, &c., Dentine, structure, &c., relation of to Bone, Vaso-dentine and Osteo-dentine. Cementum. Structure, distribution, &c. Dental Pulp, structure, modification in advanced age, &c.

The Development of Teeth.—General account of, as seen in Fish, Reptiles, and Mammals. Special modifications in particular groups. Relation of modern views to those held by Goodair, &c.

The Development of the Jaws.—Their bearing upon irregularities of the Teeth.

The Attachment of the Teeth.—By Membrane, by Ankylosis, by Implantation in sockets. The relation existing between these three methods.

The Teeth of Man.

Anatomy of Chief Associated Parts.

An outline (so far as time may allow) of the dentition of other Vertebrates.

Causes operating to modify an animal's dentition.—(1) Inheritance; (2) Armament for sexual warfare; (3) Provision for capture and commutation of food.

Fish.—Examples of typical dentitions.

Reptiles.—Ditto.

Mammals.—Ditto. Examples of extreme modifications for particular purposes. Character of Marsupial dentition; of Carnivorous, Insectivorous, Rodent, and Herbivorous dentitions.

These Lectures will be delivered on the mornings of Wednesday and Saturday at Eight o'clock, during the months of May and June. This course will be illustrated by Preparations, Diagrams, and Microscopic Examinations.

MECHANICAL DENTISTRY.

Mr. J. S. Turner, M.R.C.S., L.D.S.

Comprising the preparation of the Mouth for Artificial Teeth. Impression-taking in Wax Composition and Plaster of Paris. Mould-making in Plaster and Metal. Bites or Articulations. The Metals used in Den-

titry. Gold-melting, Refining, and Alloying. Plate-making. Artificial Teeth, their qualities and arrangement. How to work Tube and Pin Teeth. Vulcanite, its nature and preparation. Making Vulcanite Cases. Making Pivots. Mounting Spiral Springs. Regulation Plates. Dr. N. Kingsley's Method of making Soft Rubber Obturators.

This Course is illustrated by diagrams and practical demonstrations.

These Lectures will be delivered on the evenings of Wednesday, at Seven o'clock, during the months of October, November, and December.

METALLURGY IN ITS APPLICATION TO DENTAL PURPOSES.

Mr. G. H. Makins, M.R.C.S., F.C.S.

The Lectures delivered in this Course, while embracing, as far as possible, the subject generally, will be devoted more particularly to those metals useful in Dental practice.

The general properties of the Metallic bodies will first be examined, and also their Clinical relations to the non-Metallic. Some consideration will then be given to heating appliances, and to the nature and uses of Gaseous and Solid Fuels. After these the metals will be separately treated of, commencing with the noble, and ending with the base metals.

Throughout the Course, such Chemical and Mechanical points as may bear upon the Student's pursuits will be treated of, and methods of analysis detailed.

These Lectures will be delivered on the evenings of Tuesday and Friday, at Half-past Six o'clock, during the months of October and November.

GENERAL FEE FOR THE SPECIAL LECTURES AND HOSPITAL PRACTICE REQUIRED BY THE CURRICULUM.

Dental Anatomy, Dental Surgery, and Mechanical Dentistry, Two Courses. Metallurgy, One Course, £15 15s.

FEES TO SINGLE COURSES.

Dental Anatomy and Physiology, one Course, £3 3s.—Two Courses, £5 5s. Dental Surgery, one Course, £3 3s.—Two Courses, £5 5s. Dental Mechanics, one Course, £3 3s.—Two Courses, £5 5s. Metallurgy, one Course, £3 3s.—Two Courses, £5 5s. Fee for the Two Years' Practice of the Hospital required by the Curriculum, £15 15s.

Total Fee for the Special Lectures and Hospital Practice required by the Curriculum, £31 10s.

Students who perform Operations for Filling Teeth must provide their own Instruments for the same.

Further particulars may be obtained on application to the Dental Officer of the day; or the Treasurer, Mr. S. Cartwright; or the Dean, Mr. T. A. Rogers.

RULES AND REGULATIONS

To be observed by Students of the Hospital.

1. Students entering the practice of this Hospital shall (unless exempted for special reasons) do so upon the understanding that it is their intention to obtain the Dental Diploma of the Royal College of Surgeons of England. Before commencing their course of Studies they must sign

their names as willing to conform to this rule and the following regulations :—

2. Students must attend the Hospital daily (except Sunday) at 9 o'clock A.M., and upon entering the Hospital must sign their names in the Attendance Books. The attendance of Students will be submitted monthly to the Medical Committee, and no Schedules will be signed unless their attendance on Hospital Practice and at Lectures has been satisfactory.

3. No Student shall undertake any operation until he has attended a Course of Demonstrations to the satisfaction of the Medical Officers. When permitted to undertake operations for filling teeth, he must provide the instruments requisite for the same. For all cases of gold filling, permission must be obtained of a Medical Officer.

4. No Student shall, under any circumstances, receive fee or remuneration from any Patient attending, or to whom he may become known whilst attending the Hospital, and no mechanical work in the form of artificial teeth shall be supplied to a Patient by a Student of the Hospital.

5. Students must be punctual in their appointments with Patients; when otherwise, cases previously under their care will be entrusted to other Students by the Medical Officers.

6. No Student shall make use of the same Operating Chair for Patients consecutively whilst other Students are unoccupied for want of the same.

7. All instruments and appliances the property of the Hospital shall, after having been used by a Student, be returned cleansed to their proper places.

8. Students must consider themselves strictly under the control of the Medical Officers of the Hospital. All unnecessary conversation must be avoided, and quietude and gentlemanly bearing before the patients observed.

9. Any exemption from fully carrying out Rules 1, 2, and 3, can only be obtained from the Medical Committee upon grounds that may appear to them good and proper for granting such exemption.

NATIONAL DENTAL HOSPITAL,
GREAT PORTLAND STREET.

The practice of this Hospital is recognised by the Royal College of Surgeons, for the Dental Diploma. The hospital is open daily (Sundays excepted) for the reception of patients, at 9 a.m. Fee for two years attendance on the practice of the hospital, as required by the curriculum of the College of Surgeons, £12 12s.

Hospital Staff.

Consulting Physicians.—F. W. Pavy, M.D., B. W. Richardson, M.D., F.R.S.

Consulting Surgeons.—Professor Erichsen, F.R.C.S.; T. Spencer Wells, F.R.C.S.

Consulting Dental Surgeon.—J. Merryweather, F.R.C.S.

<i>Dental Surgeons.</i>	<i>Assistant Dental Surgeons.</i>	
Monday	Mr. A. Hockley, L.D.S.....	Mr. Lane Clark, L.D.S.
Tuesday.....	Mr. Oakley-Coles, L.D.S.	Mr. J. Stocken, L.D.S.
Wednesday.....	Mr. G. Williams, L.D.S.	Mr. C. E. White, L.D.S.
Thursday	Mr. W. Perkins, L.D.S.	Mr. A. F. Canton, L.D.S.

Friday Mr. H. T. Kempton, L.D.S.
 Saturday Mr. H. Rose, L.D.S.

Administrator of Anæsthetics.—Mr. Charles Moss, M.R.C.S.

DENTAL DISPENSARY, CATHERINE STREET, PLYMOUTH.

Physician.—C. Albert Hingston, Esq., M.D., London.
 Surgeon.—Warren J. Isbell, Esq., L.R.C.P., Edin., F.R.C.S.
 Consulting Dentist.—Stratton J. Coles, Esq.
 Dentists.—F. A. Jewers, Esq.; W. V. Moore, Esq., D.L.R.C.S.;
 C. Spence Bate, Esq., F.R.S., D.L.R.C.S.; Francis H. Balkwill, Esq.,
 D.L.R.C.S.

Treasurer.—Alfred Payne Balkwill, Esq.

Hon. Sec.—E. Gasking Bennett, Esq.

The Dentists attend at 9 o'clock on Mondays, Wednesdays, Thursdays, and Saturdays, to stop, regulate, or extract teeth, or to adopt such other course as the necessity of the case may suggest.

DENTAL SCHOOL.

Certificates of attendance on the practice of this Dental Dispensary are recognised by the College of Surgeons as qualifying for the Diploma in Dental Surgery. The College will also recognise lectures delivered at the Dental Dispensary, Plymouth. Pupils of any of the Dental Surgeons of the Plymouth Dental Dispensary, or other Dentists holding a Diploma of the College of Surgeons, or Member of the Odontological Society, may attend the Dispensary on the day of such practitioner as may agree to accept such pupil or pupils, on the payment of £1 1s. per annum to the institution.

General Hospitals.

CHARING CROSS.

BY JOHN FAIRBANK, M.R.C.S.,
 DENTAL SURGEON TO THE HOSPITAL.

The Charing Cross Hospital Medical School is one of the recognised Schools of Dental Surgery, and is in close proximity to the Dental Hospital.

The Course of Lectures on Dental Surgery includes the Structure, Development, and Eruption of the Temporary and Permanent Teeth; the Method of treating and avoiding Irregularities; Diseases of the Teeth and their treatment; also the mechanical treatment of Cleft Palate, and other Imperfections of the Jaws.

The Lectures are illustrated by Models and Diagrams.

Frequent Examinations are held in each Class; and only those Pupils who have regularly attended them, as well as the Lectures, will be admitted to compete for the Scholarships, Medals, and Certificates of Honour, awarded at the end of the Session.

Practical Instruction in Dental Surgery is given three times a week by Mr. Fairbank at the Hospital.

Composition Fee for Dental Surgery, £42 2s.

GUY'S HOSPITAL MEDICAL AND SURGICAL SCHOOL.

Dental Surgeon.—J. Salter, Esq., F.R.S. Assistant Dental Surgeon, H. Moon, Esq.

Practical instruction in Dental Surgery is given every Tuesday, Thursday, and Friday at 12 o'clock.

Dental Surgery.—H. Moon, Esq., during summer session.

In the Dental Department, besides the ordinary cases of affections of the Teeth, the surgeon constantly has under treatment patients suffering from cleft palate and other deformities of the jaws, and the Assistant Surgeon gives practical demonstrations and special instruction in the various branches of Dental Surgery.

KING'S COLLEGE, LONDON.

Dental Surgeon—Professor S. Hamilton Cartwright, M.R.C.S., L.D.S.

Students in Dental Surgery are divided into two Classes:—

1. Those who, having attended the Course of Study required for qualifying as a Medical Practitioner, afterwards take up the Special Courses of Dentistry, at an additional cost of Thirty Guineas.

The Special Course of Dentistry includes Lectures on Dental Anatomy and Physiology, Dental Surgery, Mechanics, and Metallurgy, and two years of Dental Hospital practice.

2. Those who only take up the Curriculum required by the College of Surgeons for their Dental Diploma. Such Students must attend two Courses of Anatomy, one of Physiology, Chemistry, Medicine, Surgery, Materia Medica, Practical Chemistry; and two Winter Sessions of Surgical Practice; also the Special Course of Dentistry.

The charge for these Students, including Matriculation Fees, is £95 1s. 6d. if paid in one sum on entrance; or £100 if paid by the following instalments, viz.: £60 on entrance; and £40 at the beginning of the Second Winter Session.

Dental Anatomy and Physiology
 Dental Surgery
 Dental Mechanics
 Metallurgy } No time fixed.
 Professor Cartwright will give Clinical Lectures on alternate Tuesdays during Winter Session.
 Practical instruction in Dental Surgery is given three times a week by the Dental Surgeon and Assistant-Dental Surgeon at the Hospital.

LONDON HOSPITAL AND MEDICAL COLLEGE.

Dental Surgeon.—A. W. Barrett, M.B., Lond., M.R.C.S.
 Dental Department.—Mr. Barrett gives practical instruction on Tuesdays at 9 a.m., which is open to all students of the school and hospital, and can be attended by gentlemen who are not pupils. Mr. Barrett will be always glad to receive applications from those desirous of holding the office of Dental Assistant. The attention of dental students is particularly directed to the fact that the Council of the College of Surgeons recognise the Dental department of the London Hospital as a school at which may be obtained the dental practice necessary to qualify a student for the examination for the Dental Diploma. Dental students may also obtain the general medical education and the dental practice necessary for the diploma, at the London Hospital School, on very advantageous terms.

Anatomy and Pathology of the Teeth, and Dental Surgery.—A. W. Barrett, M.B., Lond., M.R.C.S., Eng., Surgeon-Dentist to the Hospital. This course will be delivered on days which will be duly announced.

Fee for Dental students, £42; for two years' Dental practice, £10 10s.

MIDDLESEX HOSPITAL.

Consulting Dental Surgeon.—J. Tomes, Esq., F.R.S.
 Dental Surgeon.—J. Turner, Esq., M.R.C.S., L.D.S.
 Fees for the Lectures required by the Royal College of Surgeons, forty guineas, either in one payment or by instalments of twenty-five guineas on entrance, and fifteen guineas at the beginning of the second winter session. Pupils receive instructions on Diseases of the Teeth and

the Operations connected with them, daily at 9 a.m. Fee, £5 5s. Further information may be obtained from Dr. King.

ST. BARTHOLOMEWS' HOSPITAL AND COLLEGE.

Dental Surgery and Pathology, by Alfred Coleman, Licentiate in Dental Surgery; Dental Surgeon to the hospital, and to the Dental Hospital of London. The lectures included in this course will be adapted to the requirements of students generally, as well as of those qualifying themselves for the Dental Diploma of the Royal College of Surgeons.

The subjects treated of in this course will be the following:—

- I. The First Dentition—Conditions Normal and Abnormal
—Period of Eruption of the Temporary Teeth.
Diseases peculiar to the Temporary Teeth—Treatment of same—Absorption of the Temporary Teeth—Conditions interfering with the same.
- II. The Second Dentition—Irregularities in the Permanent Teeth, in Form, Size, Number, and Position—Treatment of Irregularities in Position.
Diseases of the Permanent Teeth—Caries, its Nature and Treatment—Operations for Plugging or Filling Teeth—Necrosis, Exostosis, &c.
- III. Diseases of other structures and organs dependent upon or connected with Diseased Teeth, such as alveolar abscess, necrosis of alveoli, alveolar haemorrhage, tumours, ulcers, glandular diseases, fistulae, closure of jaws by cicatrices.

The lectures (free to all general students of the hospital will be illustrated by diagrams, as well as by pathological and microscopic preparations.

Friday, at 10.30 A.M., during the months of October, November, and December.

These lectures are recognised by the Royal College of Surgeons as a course of lectures on Dental Surgery required for obtaining the dental diploma of that body.

Fee for general subjects for students of Dental Surgery: First winter, £26 5s.; first summer, £26 5s.; or a single payment of £52 10s.

Dental Surgery (free to all general students of the hospital)—One course, £2 2s.; unlimited, £3 3s.

ST. GEORGE'S HOSPITAL.

Dental Surgeon.—Charles Vasey, L.D.S. Mr. Vasey attends at the Hospital on Tuesdays and Saturdays from 9 to 10, and on Thursdays at 1 o'clock. Lectures on Dental Surgery are given by Mr. Vasey in the summer session. Fee, £1 1s. Gentlemen will be admitted to the lectures and Hospital practice required for the Diploma in Dental Surgery by one payment of £45.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.

Dental Surgeon.—H. Howard Hayward, M.R.C.S., L.D.S. Practical instruction in Dental operations is given on Wednesdays and Saturdays at 9.30 a.m. Also a special course of lectures in Dental Surgery. Fee for the course, £2 2s.

ST. THOMAS'S HOSPITAL.

Medical and Surgical College.—Session 1875-1876.

Dental Surgeon.—Mr. J. W. Elliott.

Assistant Dental Surgeon.—Mr. W. G. Ranger.

Fee for general subjects required for students of Dental surgery for two years £45, or by instalments of £40 for the first year, and £10 for the second year.

All students have the opportunity afforded them of being engaged in the performance of practical duties in connection with the medical, surgical, obstetrical, ophthalmic and pathological departments of the hospital.

The museums of anatomy and pathology, and of *materia medica* and chemistry, are open to the students.

Students have access to the library on payment of a fee of £1 1s. for the whole period of their studies at the hospital.

Laboratories, under the direction of the physiological and chemical lecturers are provided, and students availing themselves of them are required, for the use of materials, to pay a fee of One Guinea and a-half for the course of practical physiology, and the same sum for the course of practical chemistry.

UNIVERSITY COLLEGE HOSPITAL.

Dental Surgeon.—G. A. Ibbetson, F.R.C.S., L.D.S., Lecturer on Dental Anatomy and Physiology, will give a

course of twelves lectures at University College on Tuesdays and Thursdays at 5 p.m., beginning in January. Fee, £2 2s. These lectures are recognised by the Royal College of Surgeons for the Diploma in Dental Surgery.

WESTMINSTER HOSPITAL.

Dental Surgeon.—J. WALKER, M.D., M.R.C.S.

LECTURERS.—Mr. Walker, Dental Surgery; Dr. Dupré, F.R.S., Metallurgy; Dr. Allchin, Dental Anatomy and Histology.

October 4 to March 31.—Dental Surgery, Mr. Walker (in Oct. Nov. and Dec.), on Wednesdays at 9.30. Metallurgy, Dr. Dupré (in Jan. Feb. and Mar.), on Tuesdays at 4.0. Dental Anatomy and Physiology, Dr. Allchin, on Wednesdays at 4.0.

FEES FOR DENTAL STUDENTS.—The Fees for the *general* Surgical Practice and Lectures required for the Dental Diploma of the Royal College of Surgeons, are as follow:—

	1st Session.	2nd Session.	3rd Session.
	\$ s. d.	\$ s. d.	\$ s. d.
Surgical Practice and Clinical Lectures (two winters)	8 8 0	...	4 4 0
Anatomy and Dissections	7 7 0	...	2 2 0
Physiology	5 5 0	...	...
Chemistry	5 5 0	...	...
Materia Medica	...	8 8 0	...
Practical Chemistry (with materials)	...	8 8 0	...
Medicine	...	...	5 5 0
Surgery ...	...	...	5 5 0
Deduct Composition to General Students...	26 5 0 1 15 0	6 6 0 0 11 0	16 16 0 1 6 0
Total: in three payments, one at the commencement of each of the first three Sessions	24 10 0	5 15 0	15 10 0
Or in two payments, one at the commencement of each Academic Year ...	27 10 0	...	15 10 0
Or in one sum on entrance (not perpetual)...	88 0 0	...	...

Students who become general Dental Students, as above, may enter for their special practice and lectures at the Dental Hospital in Leicester Square, within easy reach of the Hospital, where there are great advantages for the study of Practical Dentistry; or they may enter for the

whole of their special lectures at the Westminster Hospital Medical School—in the latter case entering for the Practice only of the Dental Hospital.

The special fees for Dental Students at the Westminster Hospital are:—For the Lectures, including Metallurgy, Dental Mechanics, Dental Surgery and Pathology, and Dental Anatomy and Physiology, in one sum on entrance, £14 14s. This payment is perpetual.

The Courses required for the Dental License of the College of Surgeons are one course of Metallurgy, and two of each of the other three.

Dental Department.—The Dental Surgeon, Mr. Walker, attends at 9.15 a.m. on Wednesdays and Saturdays. The Lectures on Dental Surgery, given during October, November, and December, are, together with the practice of the Department, free to Students of the Hospital, unless a Certificate be required.

Dental Surgery.—J. Walker, M.R.C.S. and L.D.S., Dental Surgeon to the Hospital. Wednesdays, at 9.30 a.m. (in Oct., Nov., and Dec.). This course of Lectures will include the Development and Microscopic Characters of the teeth. The eruption of the temporary and permanent Teeth, with incidental Diseases. The mode of treating and avoiding Irregularities of the permanent Teeth. Diseases of, and Operations on, the Teeth.

The Lectures will be illustrated by Models, Specimens, and Diagrams.

Fees: One Course, Two Guineas; Two Courses, Three Guineas. Free to Students of the Hospital, unless a Certificate is required.

Dental Anatomy and Physiology.—W. H. Alchin, M.B. Lond., M.R.C.P., Lecturer on Histology. Wednesday, at 4 p.m. in the Physiological laboratory. This course will comprise the development, characters, and structure of teeth, and the development of the jaws in man, as compared with the same in animals.

Fees: One Course, Two Guineas; Two Courses, Three Guineas.

Dental Mechanics.—, Dental Surgeon to the Hospital. Hours not yet fixed. This course will include all the mechanical work required in practical Dentistry, and will be illustrated by diagrams and practical demonstrations.

Fees: One Course, Three Guineas; Two Courses, Five Guineas.

Metallurgy in its Application to Dental Purposes.—August Dupré, Ph. D., F.R.S., F.C.S., Lecturer on Chemistry. Tuesdays at 4 p.m. (in January, February, and March). This course of Lectures will include the general properties of the Metals, the special characters of those used in Dental practice, heating appliances, modes of manipulation, and methods of analysis.

Fees: One Course, Three Guineas; Two Course, Five Guineas.

Royal College of Surgeons of England.

REGULATIONS RESPECTING THE EDUCATION AND EXAMINATION OF CANDIDATES FOR THE DIPLOMA OF MEMBER OF THIS COLLEGE.

SECTION I.

Preliminary General Education and Examination.

I. Candidates who commenced their Professional Education on or after the 1st of January, 1861, will be required to produce one or other of the following Certificates:—

1. Of Graduation in Arts at a University recognised for this purpose. The following are the Universities at present recognised, *viz.* : Oxford; Cambridge; Dublin; London; Durham; Queen's University in Ireland; Edinburgh; Glasgow; Aberdeen; and St. Andrew's. Calcutta; Madras; and Bombay.
2. Of having passed an Examination for Matriculation, or such other Examination as shall, in either case, from time to time be sanctioned by the Council of this College, at a University in the United Kingdom, or at a Colonial or Foreign University recognised by the Council of this College.

The following are the Examinations at present recognised under this Clause (No. 2), *viz.* —

Oxford.—Responses or Moderations.

Middle-Class Examinations, Senior, the Certificates to include Latin and Mathematics,

Cambridge.—Previous Examination.

Cambridge.—Middle-Class Examinations, Senior, the Certificates to include Latin and Mathematics.

Oxford and Cambridge.—"Schools Examination Board," the Certificates to include the several subjects required in the preliminary Examination of the College.

Dublin.—Entrance Examination.

London.—Matriculation Examination.

Durham.—Examination of Students in Arts in their second and first years.

Middle-Class Examinations, Senior, the Certificates to include Latin and Mathematics.

Registration Examination for Medical Students.

Queen's University in Ireland.—Two years' Arts Course for Diploma of Licentiate in Arts.

Preliminary Examinations at end of B.A. Course.

Middle-Class Examinations, the Certificates to include Latin and Mathematics.

Matriculation Examinations.

Edinburgh ; Aberdeen ; Glasgow ; and St. Andrew's.—Preliminary or Extra Professional Examinations for Graduation in Medicine.

Calcutta ; Madras ; and Bombay.—Matriculation Examinations.

Canada ; Queen's College, Kingston.—Matriculation Examination, Preliminary Examination of Students in Medicine ; McGill College, Montreal ; Bishop's College, Montreal ; University College, Toronto ; University of Trinity College, Toronto ; Victoria College, Toronto ; University of Laval, Quebec.—Matriculation Examinations.

Nova Scotia ; King's College, Windsor.—Matriculation Examination.—Responsions. New Brunswick ; Fredericton.—Matriculation Examination ; Dalhousie College and University, Halifax.—Matriculation Examination.

Australia ; Melbourne.—Matriculation Examination, with a Certificate that the Student has passed an Examination in Latin. Sydney ; Matriculation Examination. Adelaide ; South Australian Institute.

University of the Cape of Good Hope.—Matriculation Examination. New York ; Bellevue Hospital Medical College.—Matriculation Examination.

3. Of having passed the Preliminary Examination for the Fellowship of this College.
4. Of having passed the Preliminary Examinations of the Royal Colleges of Surgeons in Ireland and of Edinburgh, or of the Faculty of Physicians and Surgeons of Glasgow.
5. Of having passed the Examination in Arts of the Society of Apothecaries of London, or of the Apothecaries' Hall of Ireland.
6. Of having passed the First-Class Examination of the College of Preceptors.
7. Of having obtained the Testamur of the Codrington College, Barbadoes.
8. Of having obtained the Degree of Associate of Arts granted by the Tasmanian Council of Education, with a Certificate that the Student has been examined in Latin and Mathematics.
9. Of having passed the Voluntary Examinations of Christ's College, Canterbury, New Zealand, the Certificate to include all the subjects required from time to time in the Preliminary Examination of the College.

II. Candidates who shall not be able to produce one or other of the foregoing Certificates will be required to pass an Examination, in English, Classics, and Mathematics, conducted by the Board of

Examiners of the College of Preceptors, under the direction and supervision of this College.

The following are the subjects of the Examination referred to in the foregoing paragraph for December, 1874, and until further notice, viz.:—

PART I.

COMPULSORY SUBJECTS.

1. Writing from Dictation.
2. English Grammar.
3. Writing a short English composition ; such as a description of a place, an account of some useful or natural product, or the like.
4. Arithmetic. No Candidate will be passed who does not show a competent knowledge of the first four rules, simple and compound, of Vulgar Fractions, and of Decimals.
5. Questions on the Geography of Europe, and particularly of the British Isles.
6. Questions on the outlines of English History, that is, the succession of the Sovereigns and the leading events of each reign.
7. Mathematics. Euclid, Books I. and II., or the subjects thereof; Algebra to Simple Equations inclusive.
8. Translation of a passage from the second book of Cæsar's Commentaries, "De Bello Gallico."

PART II.

OPTIONAL SUBJECTS.

Papers will also be set on the following six subjects ; and each Candidate will be required to offer himself for examination on one subject at least, at his option ; but no Candidate will be allowed to offer himself for examination on more than four subjects:—

1. Translation of a passage from the first Book of the *Anabasis* of Xenophon.
2. Translation of a passage from X. B. Saintine's "Picciola."
3. Translation of a passage from Schiller's "Wilhelm Tell."

Besides these Translations into English, the Candidate will be required to answer questions on the Grammar of each subject, whether compulsory or optional.

4. Mechanics. The questions will be chiefly of an elementary character.
5. Chemistry. The questions will be on the elementary facts of Chemistry.
6. Botany and Zoology. The questions will be on the classification of Plants and Animals.

The quality of the handwriting and the spelling will be taken into account.

N.B.—Each Candidate [*who has not at a previous Examination paid the amount*] is required to pay a Fee of £2 on the morning of the first day of the Examination prior to his admission thereto. The next Examination will be held in December. The exact dates of the Examination will be duly advertised, when fixed, in the Journals. Candidates are required to send in the prescribed forms of application not less than three weeks before the commencement of the Examination.

Note.—A Candidate in order to qualify for the Fellowship is required, in addition to the subjects included in Part I., to pass in Greek and in

French or German, and in one at his option of the remaining subjects in Part. II.

SECTION II.

Professional Education.

I. Professional Studies prior to the date at which the Candidate shall have passed an Examination in General Knowledge in conformity with the Regulation in the preceding Section are not recognised.

II. The following will be considered as the commencement of Professional Education:—

1. Attendance on the Practice of a Hospital, or other Public Institution recognised by this College for that purpose.
2. Instruction as the Pupil of a legally qualified Surgeon, holding the appointment of Surgeon to a Hospital, General Dispensary, or Union Workhouse, or where such opportunities of practical instruction are afforded as shall be satisfactory to the Council.
3. Attendance on Lectures on Anatomy, Physiology, or Chemistry, by Lecturers recognised by this College.

The commencement of professional study, otherwise than by attendance on Lectures in recognised Medical Schools, or by attendance on the Practice of recognised Hospitals, will not be admitted until a Certificate thereof shall be furnished to the Secretary for registration at the College, by the Practitioner whose Pupil the Candidate shall have become, or by the Medical Superintendent of the Hospital or other Institution to the practice of which he shall have entered, and will, consequently, date only from the reception of such Certificate by the Secretary; the Certificate to be accompanied by proof of having passed the necessary Preliminary Examination in General Knowledge.

III. Candidates will be required to produce the following Certificates, *viz.* :—

1. Of being twenty-one years of age.
2. Of having been engaged, subsequently to the date of passing the Preliminary Examination, during four years, or during a period extending over not less than four Winter and four Summer Sessions, in the acquirement of professional knowledge.
3. Of having attended Lectures on Anatomy, during two Winter Sessions.
4. Of having performed Dissections during not less than two Winter Sessions.
5. Of having attended Lectures on General Anatomy and Physiology during one Winter Session.
6. Of having attended a Practical Course of General Anatomy and Physiology during another Winter or a Summer Session, consisting of not less than thirty meetings of the Class.

Note A.—By the Practical Course referred to in Clause 6, it is meant that the learners themselves shall, individually, be engaged in the necessary experiments, manipulations, &c.; but it is not hereby intended that the learners shall perform vivisections.

7. Of having attended Lectures on Surgery during one Winter Session.
8. Of having attended a Course of Practical Surgery during a period occupying not less than six months prior or subsequent to the Course required by the preceding Clause 7.

Note B.—The Course of Practical Surgery referred to in Clause 8 is

intended to embrace instruction in which each Pupil shall be exercised in practical details, such as in

The Application of Anatomical facts to Surgery, on the living person, or on the dead body.

The methods of proceeding and the manipulations necessary in order to detect the effects of diseases and accidents, on the living person, or on the dead body.

The performance, where practicable, of the operations of Surgery on the dead body.

The use of Surgical Apparatus.

The examination of diseased structures, as illustrated in the contents of a museum of Morbid Anatomy and otherwise.

9. Of having attended one Course of Lectures on each of the following subjects, viz. :—

Chemistry.

Materia Medica.

Medicine.

Forensic Medicine.

Midwifery (with practical instruction, and a certificate of having personally conducted not less than ten labours).

Pathological Anatomy during not less than three months.

Note C.—The Course of Lectures on Chemistry included in Clause 9 will not be required in the case of a Candidate who shall have passed a satisfactory Examination in this subject in his Preliminary Examination.

10. Of having studied Practical Pharmacy during three months.

11. Of having attended a three months' course of Practical Chemistry (with manipulations), in its application to Medical Study.

12. Of Instruction and Proficiency in the Practice of Vaccination.

Note D.—In the case of Candidates who commenced their Professional Education on or after the 1st of October, 1868, the Certificate of Instruction in Vaccination will only be received from recognised Vaccine Stations, or from recognised Vaccine Departments in Medical Schools or Hospitals, or other Public Institutions, where the appointed Teacher of Vaccination is not liable to frequent change, and where ample means for study are provided by not less than such a number of cases (eight or ten on an average weekly) as may be found, after due inquiry, to be sufficient for this purpose at each place.

Note E.—The Certificates of attendance on the several Courses of Lectures must include evidence that the Student has attended the Practical Instructions and Examinations of his Teacher in each Course.

13. Of having attended, at a recognised Hospital or Hospitals, the Practice of Surgery, during three Winter* and two Summer† Sessions.

* The Winter Session comprises a period of six months, and, in England, commences on the 1st of October and terminates on the 31st of March.

† The Summer Session comprises a period of three months, and, in England, commences on the 1st of May and terminates on the 31st of July.

14. Of having been individually engaged, at least twice in each week, in the observation and examination of Patients at a recognised Hospital or Hospitals, under the direction of a recognised Teacher, during not less than three months.

Note F.—It is intended that the Candidate should receive the instruction required by Clause 14 at an early period of his attendance at the Hospital.

15. Of having, subsequently to the first Winter Session of attendance on Surgical Hospital Practice, attended at a recognised Hospital or Hospitals, Clinical Lectures on Surgery, during two Winter and two Summer Sessions.
16. Of having been a Dresser at a recognised Hospital, or of having, subsequently to the completion of one year's professional education, taken charge of Patients under the Superintendence of a Surgeon during not less than Six months, at a Hospital, General Dispensary, or Parochial or Union Infirmary recognised for this purpose, or in such other similar manner as, in the opinion of the Council, shall afford sufficient opportunity for the acquirement of Practical Surgery.
17. Of having attended during the whole period of attendance on Surgical Hospital Practice (see Clause 13) demonstrations in Post-Mortem Rooms of a recognised Hospital.
18. Of having attended, at a recognised Hospital or Hospitals, the Practice of Medicine, and Clinical Lectures on Medicine, during one Winter and one Summer Session.

NOTICE.—*Clauses 6, 8, 11, 14, and 17, and Notes A, B, C, E, and F, together with the Courses of Lectures on Forensic Medicine and Pathological Anatomy, mentioned in Clause 9, are applicable to Candidates who commenced their Professional education on or after the 1st of October, 1870.*

N.B.—Blank Forms of the required Certificates may be obtained on application to the Secretary, and all necessary Certificates will be retained at the College.

SECTION III.

- I. Certificates will not be received on more than one branch of Science from one and the same Lecturer; but Anatomy and Dissections will be considered as one branch of Science.
- II. Certificates will not be recognised from any Hospital in the United Kingdom unless the Surgeons thereto be members of one of the legally constituted Colleges of Surgeons in the United Kingdom; nor from any School of Anatomy and Physiology or Midwifery, unless the Teachers in such School be members of some legally constituted College of Physicians or Surgeons in the United Kingdom; nor from any School of Surgery, unless the Teachers in such School be members of one of the legally constituted Colleges of Surgeons in the United Kingdom.
- III. No Metropolitan Hospital will be recognised by this College which contains less than 150, and no Provincial or Colonial Hospital which contains less than 100 Patients.
- IV. The recognition of Colonial Hospitals and Schools is governed by the same regulations with respect to number of Patients and to Courses of Lectures, as apply to the recognition of Provincial Hospitals and Schools in England.
- V. Certificates of Attendance upon the practice of a recognised Provincial or Colonial Hospital unconnected with, or not in convenient proximity to, a recognised Medical School, will not be received for

more than one winter and one summer session of the Hospital Attendance required by the Regulations of this College ; and in such cases Clinical Lectures will not be necessary, but a Certificate of having acted as Dresser for a period of at least six months will be required.

VI. Certificates will not be received from Candidates who have studied in London, unless they shall have registered at the College their cards of admission to attendance on Lectures and Hospital Practice within fifteen days from the commencement of the Session ; nor from Candidates who have studied in the Provincial Schools in England, unless their names shall be duly returned from their respective Schools.

N.B.—At their first registration in October, Candidates will be required to produce a Certificate of having passed one or other of the Preliminary Examinations in General Knowledge recognised by this College.

VII. Those Candidates who shall have pursued the whole of their studies in Scotland or Ireland will be admitted to examination upon the production of the several Certificates required respectively by the College of Surgeons of Edinburgh, the Faculty of Physicians and Surgeons of Glasgow, and the College of Surgeons in Ireland from Candidates for their Diploma, together with a Certificate of instruction and proficiency in the practice of Vaccination, and satisfactory evidence of having been occupied, subsequently to the date of passing the Preliminary examination, at least four years, or during a period extending over four Winter and four Summer Sessions, in the acquirement of professional knowledge ; and in the case of Candidates who shall have pursued the whole of their studies at recognised Foreign or Colonial Universities, upon the production of the several Certificates required for their Degree by the Authorities of such Universities, together with a Certificate of instruction and proficiency in the practice of Vaccination, and satisfactory evidence of having been occupied, subsequently to the date of passing the Preliminary Examination, at least four years, or during a period extending over four Winter and four Summer Sessions, in the acquirement of professional knowledge.

VIII. Members or Licentiates of any legally constituted College of Surgeons in the United Kingdom, and Graduates in Surgery of any University recognised for this purpose by this College, will be admitted to examination, on producing their Diploma, Licence, or Degree, together with proof of being twenty-one years of age, a Certificate of instruction and proficiency in the practice of Vaccination, and satisfactory evidence of having been occupied, subsequently to the date of passing the Preliminary Examination, at least four years, or during a period extending over four Winter and four Summer Sessions, in the acquirement of professional knowledge.

IX. Graduates of Medicine of any legally constituted College or University recognised for this purpose by this College, will be admitted to examination on adducing, together with their Diploma or Degree, proof of being twenty-one years of age, a Certificate of instruction and proficiency in the practice of Vaccination, and satisfactory evidence of having been occupied, subsequently to the

date of passing the Preliminary Examination, at least four years, or during a period extending over four Winter and four Summer Sessions, in the acquirement of professional knowledge.

SECTION IV.

Professional Examination.

This Examination is divided into two parts.

1. The First or Primary Examination, on Anatomy and Physiology, is partly written and partly demonstrative on the recently dissected Subject, and on prepared parts of the Human Body.
2. The Second or Pass Examination, on Surgical Anatomy and the Principles and Practice of Surgery and Medicine*, is partly written, partly oral, and partly on the practical use of Surgical Apparatus, and the Practical Examination of Patients.

* Candidates can claim exemption from examination in Medicine under the following conditions, viz. :—

- I. The production by the Candidate of a Degree, Diploma, or Licence in Medicine entitling him to register under the Medical Act of 1858, or a Degree, Diploma, or Licence in Medicine of a Colonial or Foreign University approved by the Council of the College.
- II. A declaration by the Candidate, prior to his admission to the Final Examination for Membership or Fellowship, that it is his intention to obtain either of the Medical Qualifications mentioned in the foregoing paragraph, in which case the Diploma of the College will not be issued to him until he shall produce either the said Medical Qualification or proof of having passed the several examinations entitling him to receive the same.
3. The Primary Examinations are held in the months of January, April, May, July, and November, and the Pass Examinations generally in the ensuing week respectively.
4. Candidates will not be admitted to the Primary Examination, until after the termination of the Second Winter Session of their attendance at a recognised School or Schools; nor to the Pass, or Surgical Examination, until after the termination of the fourth year of their professional education.
5. The Fee of Five Guineas, paid prior to the Primary Examination, and allowed on the whole fee of Twenty-two Pounds* payable for the Diploma, is retained; and after any two consecutive failures at the Primary Examination, the Candidate is required to pay an *additional* fee of Five Guineas prior to being again admitted to that Examination, which *additional* fee is also retained.

* This sum of Twenty-two Pounds is exclusive of the Fee of Two Pounds paid for the Preliminary Examination.

6. Five Guineas, part of the sum of Sixteen Pounds Fifteen Shillings, the balance of the whole fee due for the Diploma and paid prior to the Pass Examination, is retained; and after any two consecutive failures at the Pass Examination, the Candidate is required to pay an *additional* fee of Five Guineas prior to being again admitted to the said Pass Examination, which *additional* fee is also retained.
7. A Candidate having entered his name for either the Primary or Pass Examination, who shall fail to attend the meeting of the Court for which he shall have received a card, will not be allowed to present

himself for examination within the period of three months from the date at which he shall have so failed to attend.

8. A Candidate referred on the Primary Examination is required, prior to his admission to re-examination, to produce a Certificate of the performance of dissections during not less than three months, subsequently to the date of his reference.

9. A Candidate referred on the Pass Examination is required, prior to his admission to re-examination, to produce a Certificate of at least six months' further attendance on the Surgical Practice of a recognized Hospital, together with Lectures on Clinical Surgery, subsequently to the date of his reference.

The following are the Hospitals and Schools of Surgery and Medicine from which Certificates of the Professional Education of Candidates for the Fellowship and Membership will be received by this College, for the year commencing the first of August, 1874.

Hospitals in England.

LONDON. St. Bartholomew's.—St. Thomas's.—Westminster.—Guy's.—St. George's.—London.—Middlesex.—University College.—Charing Cross.—King's College.—St. Mary's.

PROVINCIAL. Bath United Hospital.—Bedford General Infirmary.—Berkshire Royal Hospital, Reading.—Birmingham: General Hospital; Queen's Hospital.—Bradford Infirmary.—Bristol: Infirmary; General Hospital.—Cambridge, Addenbrook's Hospital.—Derbyshire General Infirmary.—Devon and Exeter Hospital.—Gloucester General Infirmary.—Hants County Hospital.—Hull Infirmary.—Kent and Canterbury Hospital.—Leeds General Infirmary.—Leicester Infirmary.—Liverpool: Royal Infirmary; Northern Hospital: Royal Southern Hospital.—Manchester Royal Infirmary.—Newcastle-upon-Tyne Infirmary.—Norfolk and Norwich Hospital.—Northampton General Infirmary.—Nottingham General Hospital.—Oxford, Radcliffe Infirmary.—Salisbury General Infirmary.—Salop Infirmary.—Sheffield General Infirmary.—Staffordshire General Infirmary; North Staffordshire Infirmary.—Sussex County Hospital.—Wolverhampton and Staffordshire General Hospital.—Worcester Infirmary.

Hospitals in Ireland.

DUBLIN. Richmond.—Dr. Steeven's.—City of Dublin.—Mercer's.—Meath.—Jervis Street.—St. Vincent's.—Adelaide.—Mater Misericordiae.

PROVINCIAL. Belfast General Hospital.—Cork South Infirmary and County Hospital; North Infirmary and City of Cork General Hospital.—Galway County Infirmary and Town Hospital.

Hospitals in Scotland.

EDINBURGH. Royal Infirmary.

PROVINCIAL. Glasgow Royal Infirmary.—Aberdeen Royal Infirmary.

Schools in England.

LONDON. St. Bartholomew's.—St. Thomas's.—Guy's.—St. George's.—London.—Middlesex.—University College.—King's College.—Westminster.—Charing Cross.—St. Mary's.

PROVINCIAL. Birmingham, Queen's College.—Bristol, Old Park Medical

School.—Cambridge University School.—Leeds School of Medicine.—Liverpool Infirmary School of Medicine.—Owens College (Manchester) Royal School of Medicine and Surgery.—Newcastle-upon-Tyne College of Medicine.—Sheffield Medical Institution.

Schools in Ireland.

DUBLIN. Royal College of Surgeons.—Trinity College.—Carmichael School of Medicine.—Peter Street Original School of Medicine.—Cecilia Street Medical School.—Dr. Steeven's Hospital.

PROVINCIAL. The Queen's Colleges of Belfast, Cork, and Galway. The several Schools recognised by the Royal College of Surgeons in Ireland.

Schools in Scotland.

EDINBURGH. University.

PROVINCIAL. Glasgow University.—Aberdeen: King's College, Marischal College and University.

The several Schools recognised by the Royal College of Surgeons of Edinburgh.

Schools and Hospitals in the British Dependencies and Colonies.

The Medical College of Bengal.—The Medical College of Madras.—The Grant Medical College at Bombay.—Canada: The University of Toronto; The University of Trinity College, Toronto; The University of Victoria College, Toronto; The University of McGill College, Montreal; Bishop's College, Montreal; The Royal College of Physicians and Surgeons, Kingston; The University of Laval, Quebec.—Dalhousie College and University, Halifax, Nova Scotia.—Australia: The University of Melbourne; The Melbourne Hospital; University of Sydney; The Sydney Infirmary; Adelaide Hospital.—Tasmania: The General Hospital, Hobart Town; The General Hospital, Launceston.

In Foreign Countries.

Paris.—Montpellier.—Strasburg.—Berlin.—Vienna.—Heidelberg.—Bonn.—Göttingen.—Wurzburg.—Leyden.—Liège.—Pavia.—Pisa. Royal Caroline Institute, Stockholm.—Copenhagen.—New York.—Philadelphia.—Harvard University, Cambridge, Boston.

The following are the Universities and other Institutions whose Certificates or Degrees will be recognized and received in lieu of the Certificates of having passed the Preliminary Examinations for the Fellowship and Membership respectively at this College, during the year commencing on the first of August, 1874, viz.:—

FELLOWSHIP.

1. A Certificate or Testamur of Graduation in Arts at one or other of the following Universities, viz.: Oxford; Cambridge; Dublin; London; Durham; Queen's University in Ireland; Edinburgh; Glasgow; Aberdeen; St. Andrews; Calcutta; Madras; Bombay; McGill College, Montreal; Queen's College, Kingston, Canada; and a Foreign University on the special recommendation of the Court of Examiners approved by the Council.
2. A Certificate of having passed such Examinations in Arts as shall be required for Graduation in Medicine by the following Universities,

viz.: Oxford; Cambridge; London (including Greek and French or German); and Durham.

MEMBERSHIP.

1. A Certificate or Testamur of Graduation in Arts at one or other of the following Universities, viz.: Oxford; Cambridge; Dublin; London; Durham; Queen's University in Ireland; Edinburgh; Glasgow; Aberdeen; St. Andrews; Calcutta; Madras; Bombay; McGill College, Montreal; and Queen's College, Kingston, Canada.
2. A Certificate of having passed one or other of the following Examinations, viz.: Oxford.—Responsions or Moderations; Middle-Class Examinations, Senior, the Certificates to include Latin. Cambridge.—Previous Examination; Middle-Class Examinations, Senior, the Certificates to include Latin. Oxford and Cambridge "Schools Examination Board," the Certificates to include the several subjects required in the Preliminary Examination of the College. Dublin.—Entrance Examination. London.—Matriculation Examination. Durham.—Examination of Students in Arts in their second and first years; Middle-Class Examinations, Senior, the Certificates to include Latin; Registration Examination for Medical Students. Queen's University in Ireland—Two years' Arts Course for Diploma of Licentiate in Arts; Preliminary Examinations at end of B.A. Course; Middle-Class Examinations, the Certificates to include Latin; Matriculation Examinations. Edinburgh; Aberdeen; Glasgow; and St. Andrews.—Preliminary or Extra Professional Examinations for Graduation in Medicine. Calcutta; Madras; and Bombay.—Matriculation Examinations. Bishop's College, Montreal; McGill College, Montreal.—Matriculation Examination. Queen's College, Kingston, Canada.—Matriculation Examination; Preliminary Examination of Students in Medicine. The University of Trinity College, University College, and Victoria College, Toronto.—Matriculation Examinations. University of Laval, Quebec.—Matriculation Examination, Nova Scotia; King's College, Windsor.—Matriculation Examination, Responsions. Dalhousie College and University, Halifax.—Matriculation Examination. New Brunswick, Fredericton.—Matriculation Examination. University of Melbourne.—Matriculation Examination, with a Certificate that the Student has passed an Examination in Latin. University of Sydney.—Matriculation Examination. New York, Bellevue Hospital Medical College.—Matriculation Examination. Preliminary Examination for the Fellowship of this College. Preliminary Examinations of the Royal Colleges of Surgeons in Ireland and of Edinburgh, and of the Faculty of Physicians and Surgeons of Glasgow. Examinations in Arts of the Society of Apothecaries of London, and of the Apothecaries' Hall of Ireland. First-Class Examination of the Royal College of Preceptors. Examination for Testamur of the Codrington College, Barbadoes. Examination for Degree of Associate of Arts, granted by the Tasmanian Council of Education, with a Certificate that the Student has been examined in Latin and Mathematics. Third-class Certificate in Literature and Science, Cape of Good Hope.

N.B. *The Certificates of having passed on and after the 1st of January, 1870, the Middle-Class Examinations, Senior, must include Mathematics as well as Latin.*

EDWARD TRIMMER.
Secretary.

Suggestions to Forthcoming Students.

"TO THE EDITOR OF THE MONTHLY REVIEW OF DENTAL SURGERY."

SIR,—I shall esteem it a favour by your inserting the following, as from observations made by many of the present students, it appears that prior to their presenting themselves for admission to our hospital, and a general hospital, they have not the least idea which hospitals would be best to join. Other difficulties seem to exist, namely, the selection of books and instruments, of which unfortunately for some, they are previously stocked with a worthless lot. I must confess that I was in a similar fix, and should have been very glad to have had a hint or two from any curriculum man.

I wish it to be understood that any particulars in connection with this school may be obtained on application to the dental officer of the day; or the Treasurer, Mr. S. Cartwright; or the Dean, Mr. T. A. Rogers.

On a student presenting himself, with but few exceptions, he decides on attending the practice and lectures here. Then comes a rather difficult question, "which general hospital had I better join?" The reply I understand is, that arrangements have been made to suit the dental students at certain hospitals, the difference being in the entrance fees which vary in amount, and the distance from our hospital.

With the latter, I would remark that in all cases I would recommend those most accessible, as the student has enough standing and running about whilst operating daily here, without having to trot any additional miles to his general hospital and lecture practice. From the remarks I hear passed, and my own experience, this should not be overlooked, for during the winter and summer months it should be a consideration.

Being an old St. Thomas's student, I will just make a remark or two in its favour. I see by the lecture list for 1875 and 1876, they are conveniently arranged for dental

students, giving them the advantage of being able to attend the practical work here in the mornings, and the theoretical there afterwards.

"Fee for general subjects required for students of dental surgery for two years £45, or by instalments of £40 for the first year, and £10 for the second year." Any further particulars can be obtained of Mr. Whitfield, the medical secretary of St. Thomas's Hospital.

Another important point is (trivial as it might appear at first) that during the oppressive or stormy weather, a student can in five minutes be in an omnibus at Charing Cross, which in ten minutes will convey him to the hospital, for the nominal sum of one penny.—Perhaps it will be as well to mention the stimulating fact, that on no occasion has the Board of Examiners ever referred a candidate to his studies for the degree of L.D.S., who hailed from this hospital. This I attribute much to the liberal supply of subjects always at hand, which I understand is not so elsewhere. Whilst dwelling on the subject of fees, I may as well refer to those of this hospital. "Total fee for the special lectures and hospital practice required by the curriculum, £31 10s." As to the selection of instruments, the better plan to adopt is, postpone purchasing any before seeing our modern appliances, which could be bought at various periods when wanted.

With reference to books, the following list is a good one.

- Gray's Anatomy.
- Heath's Practical Anatomy.
- Quain's Anatomy.
- Kirk's Physiology.
- Huxley's Physiology.
- Holden's Osteology.
- Tomes's Dental Surgery.
- Salter's Dental Pathology and Surgery.
- Clark's Surgery.
- Erichsen's Surgery.
- Druitt's Surgeon's Vade-Mecum.
- Stricker's Histology.
- Owen on the Teeth.
- Bernay's Chemistry.
- Roscoe's Chemistry.
- Tanner's Medicine.
- British Pharmacopœia.

Oakley-Coles's Dental Mechanics.

Heath on Diseases of the Jaws.

Makins's Metallurgy.

I will hint that through the influence of the Dean (Mr. T. A. Rogers,) permission has been granted to every student to obtain any book from the library of the Odontological society, according to specified rules handed him with the book, so that it does not necessarily follow every student must possess this list complete.

To conclude, I hope ere long to witness a large influx of new students, for undoubtedly it is the best investment of time and money attending our hospitals, and qualifying themselves. By so doing they are placed in a more favourable position; by that, I mean to infer, they stand a better chance of gaining the confidence of the public, as well as the medical profession. I need hardly say that it is my ambition, as well as the staff's, to further the interest of all the students, by enlightening them in every possible way, so that at the expiration of their time with us, they may easily take their degree or degrees, (should they aspire to more than the special one), and go forth to practise conscientiously what they really profess, thereby proving themselves ornaments to the existing profession. Apologising for dwelling so lengthily on this matter,

Believe me,

Truly yours,

JAS. MERSON,

Dental House Surgeon.

Correspondence.

TO THE EDITOR OF "THE MONTHLY REVIEW OF DENTAL SURGERY."

SIR,—When I visited the States in 1873 I had no desire to pry into the "inner workings" of the American dental schools. I went to see what I could, and what was seen was faithfully reported. I said not a word about the "inner workings" of the New York Dental College, neither the term nor its equivalent is employed in the whole course of the article.

To the honour of the gentlemen whom I met, be it said, I heard not a word for or against any of the schools I

visited. I was left entirely alone, and allowed to receive impressions on an unbiased mind. No doubt Dr. Abbott will be well pleased to be set right in this matter, so I ask you to give me the necessary space for this letter.

Yours obediently,

J. SMITH TURNER.

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

DEAR SIR,—It has often been my fate, as it doubtless has yours, to have a brother dentist call, and after exacting the most solemn oaths of secrecy, whisper mysteriously some great discovery, some notable invention, certain, according to him, to revolutionize the whole practice of our art, but which inevitably happens to have been known in days ante-diluvian. I must confess that I feel a malicious pleasure in telling my informants that if they had consulted the books they profess to despise, they would have been spared the trouble of *inventing* something which had been in daily use before they were born. I may here state that I have never yet learnt anything worth knowing from these mysterious inventors.—Now (*felix quem faciunt aliena pericula cautum*) as I do not wish to stumble into the same pitfall, I venture to trespass on your valuable space to ask your readers whether perchance I have not made one of the valuable discoveries of the kind just mentioned. We all know that deaf and dumb children can be trained and educated into comprehending what is said to them merely by watching the movements of the lips, but I have never heard of any attempts being made to convey *the sound itself* to a deaf person. I do not wish to enter into a long dissertation upon this subject without knowing whether the field has been explored before or not, I will merely say that basing myself on the well-known expedient of placing one end of a stick between a child's teeth and connecting the other with some musical instrument, I can demonstrate the possibility of making the child hear.

Firstly, by the help of a conducting medium, metallic or otherwise, connected with the teeth.

Secondly, without a conducting medium, but simply by holding between the teeth an instrument which being put into a state of vibration by the waves of sound would communicate, doubtless in an imperfect manner, but undoubtedly would communicate musical sound to those who next to the blind may be looked upon as the most afflicted of human beings, the deaf and dumb. I should be most thankful to any of the readers of this journal who could give me any information on this subject, and tell me whether any attempts have yet been made to convey sound to the deaf otherwise than through the natural auditory canal. I need not descant on the value of the discovery, whether others or myself have made it; suffice it to say we can easily in this way make the deaf understand what is said to them, and also see them, to use the words of John Keats, "flattered to tears by music's golden tongue.—Believe me, sir, etc.,

42, Rue de Luxembourg, Paris.

MORDAUNT STEVENS.

LIVERPOOL DENTAL HOSPITAL.—At a quarterly meeting of the committee held on the 25th ult., it was unanimously resolved that Mr. William J. Newman, of Mount Pleasant, the founder of the institution, and Mr. Robert E. Stewart, of Rodney Street, senior officer, be appointed "Consulting Dental Surgeons" to this valuable charity."

Donations to the London Dental Hospital.

MESSRS. ASH AND SONS, of Broad Street, have presented the hospital with one of Mr. Roberts' new contrivances, which serves admirably the purpose of a napkin-holder, tongue compressor, prop, and reflector. For this ingenious little nickel plated instrument, one and all must ever be indebted to its inventor. To those not expert in applying the rubber dam, it really is invaluable, or where a patient objects to having it on. I might mention it is meant more particularly for the lower molars and bicuspids, still it will do for the upper nearly as well. Mr. Roberts has not patented it, as is usually the fashion, but has placed it in the hands of the above to supply the profession as reasonably as they can, in order that no operating room shall be without it.

MESSRS. RUTTERFORD AND SON, of Poland Street, Oxford Street, have presented the hospital with one of their amalgam conveyancer's and packers. As this is quite a new instrument in the market, I will merely remark that the amount of time saved in conveying the filling to the tooth, and the ease with which it can be packed, should be sufficient to recommend itself strongly to the profession, more especially to those whose practice in plastic fillings is extensive.

ALSO one of Mr. Hickman's improved clamps for applying the rubber dam. I must confess that I am indebted to many makers of the different kinds of clamps in vogue, still after trying these and proving their excellence, I fear that those formerly used, will now lie dormant in some secluded drawer, and make way for these, which, without a doubt, far supersede any ever before introduced. The only drawback is, that the price should be nearly doubled, but should I find them better tempered than the ordinary, thereby preventing so many snapping, then the additional charge will be met.

MR. COLLINS, of 20, Poland Street, Oxford Street, has presented the hospital with a napkin holder, more particularly for the lower molars. Mr. Collins hinted to me that the original design was not his own, but was made and somewhat modified by him. As I have seen it used very little as yet, I must be excused from commenting on its possible merits. My impression is decidedly in favour of it, feeling perfectly sure that no dentist would regret ever adding this instrument to his selection.

MR. GUILLOIS, of Paris, called here to assure me that he now possesses a very superior stopping to what he has hitherto been sending out; the great advantage being that he has different samples, which will set in one, two, three, four, or five minutes. It unquestionably is preferable to what has been supplied in former years, as regards the rapidity of setting, but whether for durability, that remains to be proved. Mr. Guillois left three boxes, hoping I would give each a fair trial.

JAMES MERSON, *Dental House Surgeon.*

LONDON DENTAL HOSPITAL.

CASES TREATED FROM AUGUST 1ST TO AUGUST 31ST, 1875.

Extractions.	Children under 14	...	...	...	413
	Adults	...	...	...	609
Under Nitrous Oxide	...	...	...	...	260
Gold Stoppings	...	...	...	...	156
White Foil ditto	...	...	...	...	22
Plastic ditto	...	...	...	...	189
Irregularities of the Teeth treated surgically and me- chanically	...	...	...	...	82
Miscellaneous Cases	...	...	...	...	168
Advice Cases	...	...	...	...	133
			Total	...	1978

JAMES MERSON, *Dental House Surgeon.*

The following Publications have been Received:—

- The Dental Register.
- Johnston's Dental Miscellany.
- Le Progrès Dentaire.
- Le Progrès Médicale.
- The Dental Cosmos.
- The Pennsylvania Journal of Dental Science.
- The Missouri Dental Journal.
- Deutsche Vierteljahrsschrift.
- Transactions of the Odontological Society.
- Correspondenz Blatt.
- Boston Journal of Chemistry.
- The Dental Advertiser.
- The London Medical Record.
- Treatment of Burns and Scalds. By Francis Mason, F.R.C.S.
- Reference Tables for the Laboratory. By Thomas Fletcher.
- Transactions of the American Dental Association.

TO CORRESPONDENTS.

ALL communications intended for the Editor should be addressed to the care of Messrs. SMITH, ELDER & CO., 15, Waterloo Place, Pall Mall. All inquiries respecting Advertisements and Subscriptions should be sent to Mr. GEORGE BUTCHER, 4, Crane Court, Fleet Street, E.C.

THE MONTHLY REVIEW
OR
DENTAL SURGERY.

No. V.

OCTOBER, 1875.

Vol. IV.

The Winter's Work.

WITH the commencement of the Winter Session professional work in London, begins in earnest. In a few weeks time we shall have the Odontological Society of Great Britain holding its meetings, and the various other learned societies will supply the Dental Surgeons of the metropolis with plenty of mental occupation. At our two Dental Hospitals the members of the staff will be getting into working order after their vacation, and the lecturers at the London School of Dental Surgery, after their brilliant commencement at Willis' Rooms, will now fall into the ordinary routine of their winter's occupation. The plan adopted by the Council of the Odontological Society of sending out forms of application for membership to the Society, to each present member, will doubtless result in a considerable increase of numbers during the coming winter. The larger proportion of original articles appearing in the dental journals indicates greater mental activity, and so far as we can see, the coming winter's work bids fair, at least in London, to be both pleasant and profitable. But what of the members of the profession in the provinces? With the exception of the Odonto-Chirurgical

Society of Scotland, no pleasant gatherings are in store for them. If they live sufficiently near town, they may at considerable personal discomfort and inconvenience attend some of the meetings of the Odontological Society, but those in the midland, western, and eastern counties have no centre for friendly professional intercourse, and whilst we in London blame them for their lack of interest in dental progress, we must bear in mind their lack of opportunity of cultivating such interest.

The recent meeting at Manchester has, however, at last shown that the provincial dentists are awakening to a sense of their power and requirements. Let this feeling be fostered to the fullest, but at the same time let it be guided by the experience, of others, in the past. Whilst energetic, and we trust, efficient steps may be taken to obtain prohibitive legislation in regard to the practice of dentistry, it should not be overlooked, that reform must to a great extent begin from the centre of the circle, rather than at the circumference, and the Dental Reform movement will appeal but feebly to the dentists of London, at any rate, if its promoters permit their circulars to be sent out, containing an enclosed advertisement for "plastic fillings." We trust that our country friends will see that the shortest road to reforming the present generation at least—will be the formation of local societies, as branches of a British Dental Association. By this means they can readily show in a country town whom they consider to be fit and proper persons to be recognised as dentists, and their non-eligibility for the membership of a local society would indicate more plainly than any Act of Parliament, those practitioners whom their professional brethren deem unworthy of public and professional confidence. The formation of such local societies, as we have indicated, may, we feel, very profitably constitute the winter's work for our country friends.

The Month.

DEATH OF DR. GAGE.

We regret to announce the death of Dr. R. M. Gage, of New York. The deceased was an highly esteemed member of the American Academy of Dental Surgery, and Vice-President of the American Dental Convention. Dr. Gage died on July 26th.

THE HEADS OF THE PROFESSION.

We have been informed on tolerably reliable authority, that the heads of the Dental Profession are to be done, both actually and figuratively, in Parian. We may therefore look forward to the no very distant day when the corners of our mantelselves and other vacant spaces will be decorated with busts of those whom we have long regarded as the ornaments of our profession. We are not sure how far the subjects of this enterprise have been willing agents in the matter. We may presume that in some instances, at any rate, the workers in Parian have obtained the portraits through the aid of the photographer.

NATIONAL DENTAL HOSPITAL.

Mr. Thomas Gaddes, L.D.S., R.C.S., has been appointed Assistant Dental Surgeon to the National Dental Hospital.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

At the meeting, November 1st, the following communications will be brought forward:—"Case of the Irregularity of the Teeth." By Mr. H. Sewill. "Case of Dilaceration." By Mr. Smith Turner. Specimens recently added to the Museum will be exhibited by Mr. Charles Tomes. A paper will be read by Mr. S. J. Hutchinson, on "The Dental Nerve Pulp in Life and Death."

MR. DENNANT has been elected President of the Brighton and Sussex Natural History Society.

DENTISTRY IN 1796.

AMERICAN dentists of the present day may with justice lay claim to a high reputation for skill and ingenuity. The autograph letter of Washington which appeared in the Journal of June 17th showed that considerable enterprise was shown also by our dental forefathers. We have before us

an interesting document which gives quite accurately the degree of proficiency which had been reached in dentistry toward the close of the last century. It consists of an advertisement issued by one Josiah Flagg, surgeon-dentist, who

"Informs the public, that he practises in all the branches with improvements, [i. e.] Transplants both live and dead Teeth with great convenience, and gives less pain than heretofore practised in Europe or America:.....Sews up Hare Lips:.....Cures Ulcers:....Extracts Teeth and stumps, or roots with Ease:.....Reinstates Teeth and gums, that are much depreciated by nature, carelessness, acids, or corroding medicine:.....Fastens those teeth that are loose (unless wasted at the roots); regulates teeth from their first cutting to prevent fevers and pain in children; assists nature in the extension of the jaws, for the beautiful arrangement of the second Sett, and preserves them in their natural whiteness entirely free from all scorbutic complaints. And when thus put in order and his directions followed (which are simple) he engages that the further care of a *Dentist* will be wholly unnecessary:.....Eases pain in Teeth without drawing:.....Stops bleeding in the gums, jaws, or arteries:.....Lines and plumbs teeth with virgin Gold, Foil, or Leads: Fixes *gold Roofs and Palates*, and artificial Teeth of any quality, without injury to and independent of the natural ones, greatly assisting the pronunciation and the swallow when injured by natural or other defects. A room for the practice with every accommodation at his house, where may be had Dentifrices, Tinctures, Teeth and Gum Brushes, Mastics, &c., warranted approved and adapted to the various ages and circumstances:.....also Chew-sticks, particularly useful in cleansing the fore teeth and preserving a natural and beautiful whiteness; which Medicine and Chew-sticks are to be sold wholesale and retail, that they may be more extensively useful.

"* Dr. Flagg has a method to furnish those ladies and gentlemen or children with Artificial Teeth, Gold Gums, Roofs, or Palates, that are at a distance and cannot attend him personally.

Cash Given

for Handsome and Healthy Live Teeth
at No. 47, Newbury Street, Boston (1796)."

The document is ornamented in one corner by very formidable and antiquated instruments, while in the other are to be seen tooth-brushes quite of the modern pattern. It has been preserved by a descendant of one who, as may be seen on the back, purchased a brush and tincture from Josiah Flagg in the year 1800.—*Boston Medical and Surgical Journal*, September 9th, 1875.



Microscopical Structure of Fossil Teeth.

FROM THE NORTHUMBERLAND TRUE COAL MEASURES.

By W. J. BARKAS, M.R.C.S.E., L.R.C.P. LONDON.

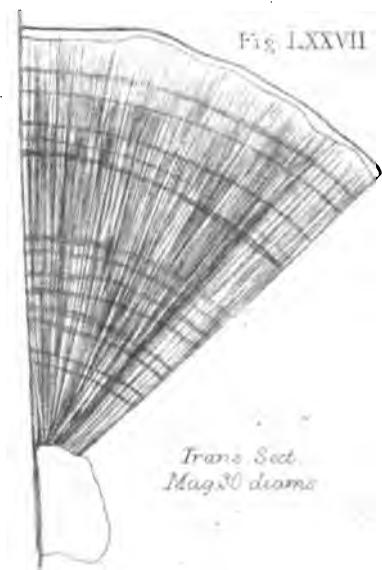
CHAPTER XVI.

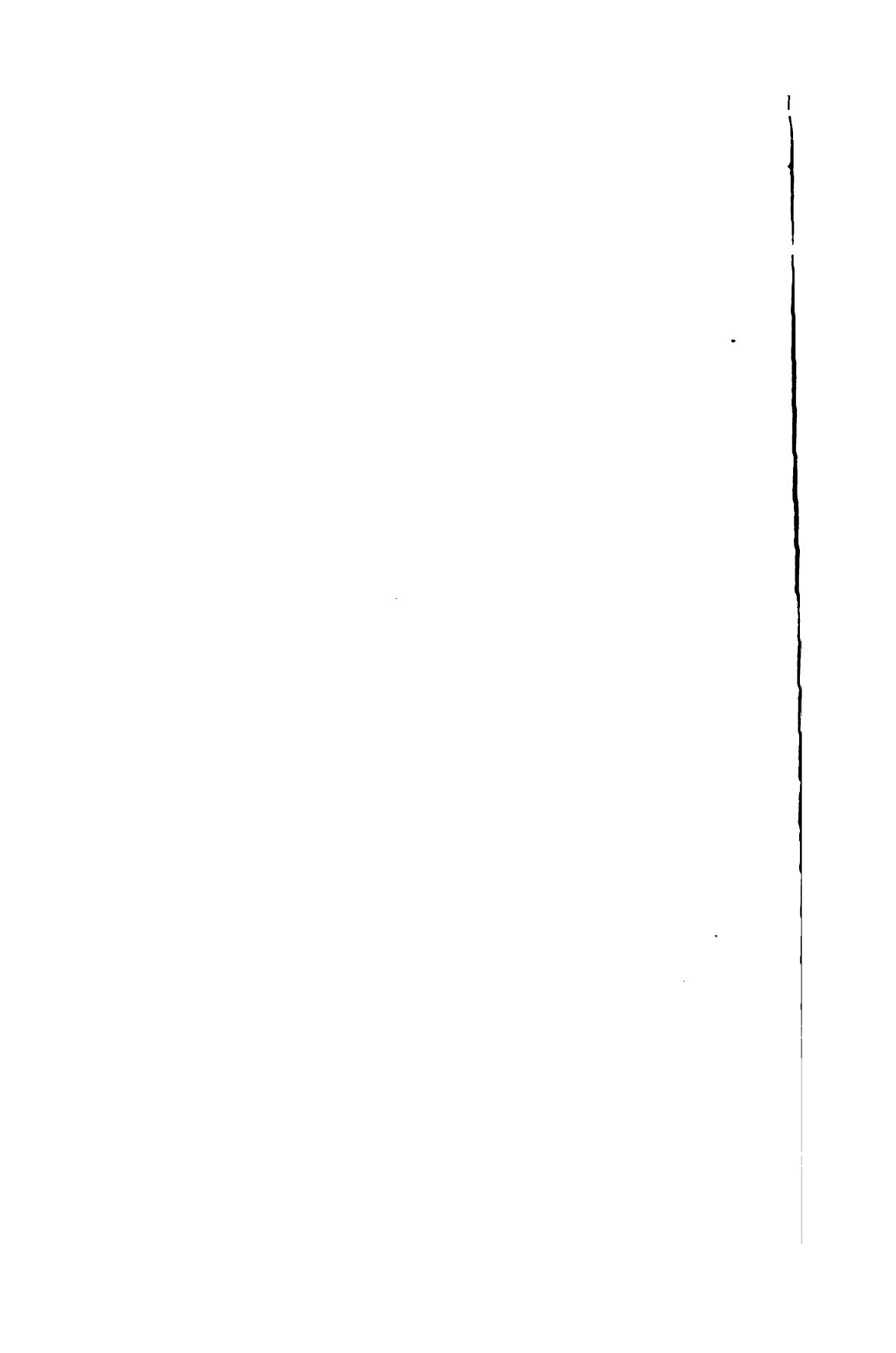
[Continued from p. 62.]

THE teeth, we observed, lining the alveolar borders of the pre-maxilla and mandible, were of two sizes, while those on the maxilla presented only one; the teeth of the maxilla, however, are of the same height as, and possess similar characters to the small teeth in the external row of the pre-maxilla and mandible, provided these three dental bones pertain to one fish, for both the laniary and the small teeth vary in height according to the size of the fish to which they belong. I have in my possession laniary teeth ranging from one-twelfth of an inch to one inch and a quarter in height, while the minute teeth vary from extreme minuteness to two-fifths of an inch. Fig. LXXIV. is a representation of a large mandibular laniary tooth, broken off close to its junction with the jaw. All the teeth, whether laniary or minute, present a conical form, gradually tapering from a rather broad base to a sharp point; the laniary teeth, however, are often obtusely rounded at the apex, they are frequently perfectly upright, but just as often they are slightly curved inwards near their apices; this gentle curvature gives to them a very graceful appearance, which is well seen in Fig. LXXIV. The external surface glistens, and it is finely striated from the base upwards, but as the striae approach about half-way towards the apex, they gradually disappear, and the surface, for the remainder of the distance, is smooth and shining. Besides these exceedingly fine striations, the bases of the larger teeth frequently present a series of regular, broad, but very shallow vertical depressions arranged around the circumference; these depressions give to the base the appearance of having been cut into facets, similar to those often seen on cut-glass tumblers; these facets do not extend so far up the tooth as do the fine striae. Close to the junction of the tooth with the bone, a few deep vertical grooves become visible, indicating the commencement of the folding of the dentine before it becomes divided into roots.

The form of the palatal teeth, and those situated on the internal surface of the mandible, I have already referred to ; the name, teeth, is, in my opinion, a misnomer, for they are merely minute tubercles on the buccal surfaces of the bones, they can serve no office of any kind, for they are too minute to be of use in lacerating or seizing the kind of food these fishes would feed upon, their diet probably consisting solely of live fishes, which so soon as they were caught by the fearful tusks, would be swallowed pretty nearly intact. They are even too few and minute to crush small crustaceous and testaceous animals, if such were occasionally their food. The largest tubercles of the anterior marginal row in the specimens in my possession do not measure the one-fiftieth of an inch in height; the base is very broad, being equal in diameter to the height of the tubercles. The posterior tubercles are exceedingly small, merely causing the surface to feel rough, like a coarse file.

Before describing the microscopical structure of these teeth, I shall refer to certain of their internal characters that are not microscopical, but transverse and vertical sections require to be made before they can be observed, such are the nature of their attachment to the jaw, and the peculiarities of their pulp cavities. Fig. LXXV. is an almost vertical section of a portion of a mandible containing three small teeth; it shows very clearly the form of the pulp cavity, and the structure of the bone, but the mode of attachment is only seen indifferently from the roots having been cut slightly obliquely. In order to remedy this defect, I have drawn Fig. LXXVI., which is a vertical section of a perfect tooth free from its bony attachments. The mode of the division of the body of the tooth into roots, and the manner of their termination is well worth a little attention, for in almost all the *Crossopterygideous* that possess conical teeth, these methods are to be observed. Directly the tooth enters the substance of the jaw, or it may be even before the junction, it appears to gradually divide into a number of roots; when the division is complete, the roots commence to diverge from each other as they pursue their course into the bony tissue of the alveolar process, and ultimately they become blended with the bone; the blending, however, being exceedingly gradual, the calcigerous tubes being visible some time after





the roots have lost their definition, springing from the Haversian canals ramifying in the bone tissue. This method of termination is, as I have already said, not shewn very well in Fig. LXXV., for the section has been made somewhat obliquely, and the extremities of the roots have been rubbed away, but such is their mode of ending. When I come to speak of the teeth of *Strepsodus*, I intend to place before my readers an illustration of a section that I have prepared, shewing the roots terminating in the manner I have described. That the above method of the division of a tooth into roots is really correct, can be very well shown if transverse sections be made through the base of a tooth buried in the jaw, each section being taken at a lower point than its predecessor. A section made just below the point of junction of the tooth with the bone, will present an appearance somewhat like the transverse section of the base of a tooth that I have pourtrayed in Fig. LXXIX., but the folds will be complete throughout the whole of the circumference, each division being continuous with its neighbours, thus giving the base a convoluted outline. Now as we proceed, making sections deeper and deeper into the jaw, it will be found that the grooves on the external surface sink further and further towards the central axis of the tooth until ultimately they cut completely through the dentine, and become continuous with the pulp cavity, and each convolution becomes a separate root. As the grooves on the external surface of the tooth deepen, the substance of the bone creeps in, and at the same time the pulp cavity becomes filled with ossaceous tissue, therefore the division of the roots is complete, they are wholly surrounded by bone. Coincident with the folding inwardly of the dentine, the portions intervening between each groove becomes forced outwardly, so that on examining a transverse section, we observe grooves on the internal and external surfaces alternating with one another. Into the internal grooves the pulp cavity passes. As the tooth sinks into the jaw, the pulp cuts its way externally, so that each convolution becomes divided into two roots. Fig. LXXVIII. is a transverse section taken somewhat deeply in the jaw, it shews the convolution perfectly at one side, but at the other they have been converted into roots and become blended with the bone tissue. Professor Owen in his "Odontography," states that the pulp cavity

is continued into these processes of the dentine, but that is not the fact, for after the convolutions are destroyed, there is not any pulp cavity because it is then filled with bone, so that the detached roots can only obtain their supply of nourishment from the Haversian canals of the bone surrounding them.

The pulp cavity follows the contour of the tooth, it is therefore, conical in shape, and reaches nearly to the apex; its widest diameter is immediately above the junction of the tooth with the jaw; from this point upwards, a series of transverse sections show that the cavity has a narrow elliptical form, and that its diameter is about half that of the tooth itself. As the pulp cavity descends from the point of its greatest diameter it becomes narrower, and at the same time irregular in outline, as it follows the convolutions of the dentine; when these convolutions are converted into distinct roots the pulp cavity becomes lost, and osseous tissue takes its place. It would be from the Haversian canals of this intruding bone substance that the original pulp would receive its vascular supply. I have already stated that the pulp cavity does not extend any ramifications down the roots after they have become separate, as remarked by Professor Owen. Almost any vertical section that shows the terminations of the fangs, will demonstrate that the calcigerous tubes arise from undoubted Haversian canals. Without doubt the roots will appear to possess an internal cavity, when they are cut like those in Fig. LXXV., but then the section has been made obliquely across the convolutions, and the extremities have been rubbed away.

The palatal teeth (Fig. LXXIX.) have no roots running into the bone tissue like the conical teeth; they are implanted for a short distance in the bone, but the dentine of the tubercle is not continuous with the osseous structure. As the dentine passes into the bone, it proceeds further and further from the central axis of the tubercle, so that the orifice of the socket is narrower than the bottom; by this contrivance the tubercle is held firmly in its place. The depth of the socket is further increased by the osseous tissue immediately surrounding the tubercle being raised above the general level of the bone. There is still another point about the fastening of these tubercles in the bone that is worth noticing, and that is, that the dentine, after

it has reached the bottom of the socket, suddenly contracts, and passes into the osseous substance, which thus grasps it both internally and externally. The pulp cavity is dome-shaped, in fact the whole tubercle may be compared to a flat plate of dentine bent over, and the free edges implanted in the bone enclosing the pulp in the concavity. At the bottom of the socket in Fig. LXXIX., it will be observed that the pulp cavity projects into the bone in two places, these are evidently the commencements of two canals, leading from the pulp cavity to a Haversian canal in the neighbourhood, perhaps the one outlined at the base of the figure.

Some Points on the Relation of the Teeth to Disease.

By DAVID HEPBURN,

A Paper read before the Medical Society of Middlesex Hospital.

MR. PRESIDENT AND GENTLEMEN.—I propose this evening to bring before your notice “Some point on the Relations of the Teeth to disease;” and I have selected some of those only, which seem to me to be of more interest to the General, than to the Dental Surgeon, trusting that I may elicit from you, your experiences upon this interesting subject.

It must have struck most of us, in examining patients, how frequently a well formed, and sound structured set of teeth is associated with a constitutionally strong and healthy state of the body, whereas, on the other hand, irregularity, caries, and impaired development of these organs, are so often met with in the diseased and debilitated. Amongst primitive races, who live out-door healthy lives, being unexposed to the evil effects of over-crowded cities and artificial living, disease of the teeth is as rare as disease of the body, but as a nation advances in civilization, and maladies become multiplied, the teeth appear more and more prone to lapse into unhealthy or abnormal conditions, and come under the notice of the Surgeon in two ways.

1st. As Aids to Diagnosis.

2nd. As the exciting causes of certain diseases.

The first of these, I will briefly consider under three heads, viz. They are aids to Diagnosis.

- 1st. By their arrangement in the Dental arch.
- 2nd. By their occasional absence from the Series.
- 3rd. By abnormalities in their structure or Physical appearance.

A good example of teeth aiding us in diagnosis by their arrangement, comes under our notice in what is generally known as the V shaped maxilla, in which the teeth when present are very peculiar. This form of jaw (which will be described presently) is frequently met with in congenital idiots, and forms a very characteristic sign of this distressing mental condition.

The peculiarity in the arrangement of the teeth is most apparent when the permanent teeth are present, but the characters which lead to its formation are visible during the existence of the temporary teeth, and even at birth when the jaws are identulous. Associated with the peculiar irregularity of the teeth, is found a high vaulted palate, a long rough tongue, and an incessant dribbling of saliva. The abnormality consists, in a marked contraction in the bicuspid region, so that these teeth, on either side, somewhat approximate one another, while the molars diverge posteriorly. This of course is but a secondary consequence of mal-development of the maxillary bones, due to causes which have acted "in utero," and it appears, the earlier the intra-uterine lesion, the stronger the deformity seems to be developed. Various theories have been brought forward to account for these appearances, the most probable seems to be that it depends on the development of the "sphenoid bone," which in turn, is a secondary consequence of some defective development of the brain during intra-uterine existence. It is now I think a clearly established fact, that the arch of the jaw containing the temporary teeth, both in upper and lower jaw, remains the same throughout life, of course it is increased in thickness by deposition of bone on its surface, but the space gained for the increased number of teeth in the permanent series, is procured by extension backwards of the cornua of the original arch. Normally these cornua slightly diverge, and the backward growth takes place in the direction of the divergence; if however, any cause has operated, by which the cornua in the infant jaw have been made to run parallel, (which would be very likely to be produced by any abnormal development in the sphenoid bone), as the

original arch, when once formed, never changes, and space must be gained by the jaw, in order to accommodate itself to the other bones of the skull, it would be gained by the new growths diverging backwards and forming angles with the original cornua. This of course becomes clearly visible, when the second dentition has made its appearance, and becomes a marked feature in the congenital idiot, and is specially useful as a diagnostic sign, when the medical man is called upon to decide, whether idiocy is due to causes which have operated before or after birth. Of course like all diagnostic signs it must only be taken in conjunction with others, and although entirely dependent upon very remote causes, the peculiarity is most manifest when the teeth are *in situ*. I will quote one case mentioned by Mr. Langdon Down, which shows that the subject is by no means an unimportant one. He says "That a year or two ago, a very intelligent medical practitioner in the country, was called in to treat a case of infantile convulsions. The condition of the child was desperate; he poured from a ewer a stream of cold water over the occiput of the child; the convulsions ceased, the patient was rescued from impending death and grew up to be an idiot. The friends of the child took up a position which involved a trial in a court of law, equivalent to an action of malpraxis against the medical man. By judge's order, I with other medical men saw the child; and we were able to say not only that the child was an idiot, but by an examination of the *mouth*, to assert that the idiocy was embryonic as to date, and that the medical man was in no way responsible for the mental condition of the child whose life he had saved."

I will now pass on to the next head, namely, that of "Absence of teeth from the Series."

It not unfrequently happens that a tooth after complete development, from some cause or other, is never erupted through the gum. This may occur by its being inverted, or by its having assumed a horizontal instead of a vertical position. I have here a very good example of this abnormality, to which I am indebted to my friend Mr. Scott, who procured it from one of the dissecting room bodies; it will be noticed that the canine is lying horizontally in the substance of the bone, separated from the inferior meatus of the nose by a very thin bony partition. Teeth thus situated may

gve rise to severe deep-seated pain, for which there seems to exist no obvious cause, or may give rise to that species of tumour known as "Dentigerous Cyst." These cysta, however, are occasionally due to the presence in the substance of the jaw of "supernumerary teeth," that is, teeth which are formed over and above the normal number. This model shows two large erupted supernumerary teeth, in the region of the incisors, which may be interesting to gentlemen unacquainted with the peculiarity. In making use of the fact of "the absence of teeth from the series" in diagnosis, it must be remembered that cases are often met with in which certain teeth have never been formed at all, this peculiarity being frequently hereditary. For instance, in one family, the father had no lateral incisors in the upper jaw. Two of his children were also remarkable for deficiency of these teeth. Under this head I may also mention the frequent occurrence of dyspepsia in those people whose gums are denuded, either partially or totally, of the masticating organs, in consequence of which they are unable properly to perform that function, whereby the food is chemically acted upon by the saliva, and mechanically prepared by the teeth for the digestive action of the stomach. In cases of dyspepsia due to this cause, the use of artificial teeth seldom fails to ameliorate matters. In dyspepsia, therefore, it is well always to enquire into the state of the mouth, not only as regards the "absence of teeth," but also as regards its general condition, as frequently a person with perfectly identulous jaws, will more thoroughly masticate and digest his food than one whose jaws are full of tender stumps or carious teeth, rendering the gums sensitive, and vitiating the oral secretions.

Under the third head, namely, that of "Abnormalities in the structure or physical appearance of the teeth," the most striking example comes before us in those teeth which are generally known as "syphilitic teeth," first described by Mr. Hutchinson, who considered the appearances furnished by them to be a most valuable aid in determining the existence of hereditary syphilitic disease. He holds the opinion that the characteristic malformation is produced by the inflammation of stomatitis spreading to the embryonic teeth whilst in a soft condition, and does not attribute it to any intra-uterine cause directly affecting their development, as the child, the subject of hereditary syphilis, is generally

born healthy in other respects, the inflammatory effects of the inherited poison not showing themselves until afterwards. Mr. Berkley Hill also holds the same view, but the chain of evidence in proof thereof is very incomplete, so that I think it is still an open question whether the affection is due to intra or extra-uterine causes, although the probability seems to lean towards the latter. Some German authors have, I believe, discredited in a measure the whole theory of "syphilitic teeth." The fact, however, I think is established beyond doubt, that a certain peculiarity in structural formation and physical appearance is frequently encountered in the teeth of those who are the subjects of hereditary syphilis, and I will endeavour to describe it. With regard to colour, I cannot do better than quote the words of Mr. Coleman, who says, "that the colour of these teeth is very characteristic, being of a dirty translucent shade, not, perhaps, unlike the size frequently seen in the oil shops, and therefore, somewhat difficult to describe, but when once seen is readily recognised again."

The affection seems principally to show itself in the incisors, the centrals of the upper jaw being most commonly affected, but it may also show itself slightly in the canines. It is found that when the jaws are closed, the incisors do not come in contact with their antagonistic teeth which seems to be due, not only to the peculiarity of the teeth themselves, but also to a deficiency of the alveolar portion of the superior maxillary bone. These teeth, moreover, are somewhat cylindrical in form, and are, as a rule, narrower at the cutting edge than at the neck, which is just the reverse in normal teeth, this gives to them a peg-shaped appearance. In addition to this, on the cutting edge is a semi-lunar notch of considerable depth. When the canines are involved, the tip seems principally to be affected, it being either entirely absent, or the tooth terminates in a sharp nodule, determined by the presence of a well-defined circumferential groove. The teeth are universally small, and usually spaced; in structure they are soft, but do not appear to be specially liable to caries, however, they soon wear down, and at the age of 25 have generally become abraided to such an extent that their peculiarities are no longer recognisable. (As I have been unable to procure any dry specimens, I have copied some of Mr. Hutchinson's plates of these teeth, which I will lay before you,

they are all taken from authentic cases). It must be remembered that a condition of tooth, somewhat similar to this, may be produced by early mercurial treatment, where no hereditary syphilis exists. The foregoing remarks bear reference only to the permanent teeth, but the temporary teeth may also be affected, and here the neck of the tooth seems principally to suffer, causing it to break off at an early age. In some cases it causes their too early eruption, whilst on the other hand it may retard it. Mr. Berkley Hill states, that the peculiarity may present itself in children who have been *innoculated* with the disease prior to the completion of the teeth, and he has published a remarkable case in support of the assertion. The child was inoculated on the face whilst sucking at the breast, the mother having contracted the disease from her husband subsequent to the birth of the child, in this case the first set of teeth soon decayed, and the second bore all the characteristic features of "*syphilitic teeth*."

We now come to those cases in which the teeth themselves are "the existing causes of certain diseases," and I will first roughly glance at those tumours which have their origin in, or are due to the teeth. These are the dentigerous cyst, that rare form of tumour termed odontome polypus of the gum, epulis, and occasionally the fibrous tumour. Small cysts are sometimes found connected with the extremities of the fangs of teeth after their extraction, but are of little importance. The true dentigerous cyst, however, which has been referred to above, is associated with teeth which have remained in the substance of the jaw, and have been subject to some cause of irritation, terminating in the formation of a cyst, containing a clear glairy fluid, in which the tooth is lodged. These tumours are, I believe, frequently mistaken for solid tumours. When distended they may be diagnosed by a sensation of "crackling" on pressure, and the absence of any particular tooth. The treatment consists essentially in evacuating the fluid and removing the cause of irritation.

An odontome is a tumour of the tooth itself, due to a hypertrophy of the formative pulp of the tooth, which afterwards becomes calcified in the usual manner, giving rise to a solid hard tumour of variable size. These tumours are exceedingly rare.

The simple polypus of the gum is generally found situated between two teeth, and is produced either by simple irritation from the rough edge of a carious tooth or a deposit of tartar. It is easily cured by the application of astringents when the cause of irritation is removed.

The characters of the ordinary epulis met with in the mouth are so well known that I need not dwell upon them. It is, however, one of those tumours which seems to owe its origin, although perhaps indirectly, to the teeth, being generally found to spring from the periosteum lining the socket of a tooth, and never met with when the jaws are identulous and the alveoli removed by absorption.

With regard to the "fibrous tumour," this is sometimes formed from the lymph which is poured out from the inflamed periodontal membrane of a diseased tooth, which lymph, instead of forming itself into an alveolar abscess or becoming absorbed, finds its way into the substance of the jaw, and there becomes organised into a fibrous tumour. This is only met with in the lower jaw.

The frequent dependence of neuralgic pains arising from diseased condition of the teeth is a fact well established and appreciated, and various are the conditions which may give rise to these painful symptoms. Amongst them, I may mention inflammation of the periodontal membrane, and inflammation of the pulp, both these may be readily diagnosed by a careful examination. A very frequent cause, however, is exostosis of the root, that is a hypertrophied condition of the cementum which covers the fang. (I have here some specimens of the disease). It is also the most difficult to recognise and is frequently met with in teeth, which to all outward appearance seem perfectly healthy and free from caries; it is, however, more generally associated with other diseased conditions of the teeth, and is always a secondary effect of inflammation of the periodontal membrane, which may be due to various causes, caries, rheumatism, syphilis, &c. The diagnosis of idiopathic neuralgia from that arising from exostosis of the tooth, is by no means easy; with regard to this point, Mr. Walker, who has written a valuable paper on the subject, states as follows:—"In neuralgia we find the pain intermittent, at times more intense and acute, affected by atmospheric influences, increased by anxiety and distress of mind, by the general condition of the system: while on the

other hand, however small the deposit, the pain is constant, with no intermission, uninfluenced by sleep, rest, or the administration of narcotics, anodynes, or tonics." I must say that my own experience does not quite bear out these rules, I think, however, that they are *generally* very useful. To show the occasional obscurity of these cases, I will quote one which came under my notice. The patient, a woman about thirty years of age, had suffered for some months with severe neuralgia, medicines had afforded no relief: on examining the mouth not one carious tooth was found, which is a most unusual occurrence, she, however, had an idea that the pain originated somewhere in the region of the left lower molars, these were examined and still no disease was manifest; however, by smartly tapping the teeth in turn with the steel handle of an instrument, a slight sense of pain was experienced in the second molar, at the patient's request the tooth was extracted, rather unwillingly by the operator, and at the extremity of one of the fangs was discovered a minute exostosis, resembling the point of a needle, and consequently known as "the needle point." This had evidently been the cause of all the mischief, as all pain ceased after the removal of the tooth.

While on the subject of "nervous affections," I may refer to "spasmodic closure of the jaws," which is so frequently the result of the difficult eruption of wisdom teeth, and often comes under the notice of the general surgeon. As this generally occurs in young people about the age of 21. the cause may be easily guessed at, and although the jaws may be very firmly closed, gradual dilatation with the fingers, or putting the patient under the influence of an anaesthetic will afford sufficient room for ascertaining the true cause of the affliction; if lancing the gum affords no relief, either the advancing wisdom or the second molar must be sacrificed, which is frequently a matter of great difficulty. Cases are on record in which this condition of the jaws has been allowed to go on for months, and in one case for over two years, in which immediate relief was afforded by extraction of a tooth. Many more affections are met with in connection with the teeth, amongst these, temporary blindness, deafness, and wry neck.

Ulcers of the tongue are generally classified under three heads. The simple or dyspeptic, the syphilitic, and the

cancerous ulcer. All these of course depend upon some remote or constitutional cause. In addition to these, however, we have the ulceration of the tongue which is due to some local source of irritation, probably that of roughened or irregular teeth, and it is remarkable how trifling a cause is sufficient to produce this effect upon the organ, so richly is it supplied with nerves and vessels. It is not surprising, therefore, that in so sensitive an organ, any of the above named ulcers, dyspeptic, syphilitic, or cancerous, should be determined by the presence of the sharp edge of a fractured or carious tooth, or of prominent cusps or irregular teeth protruding inwards toward the tongue, in people who have within them the constitutional condition necessary for their production. Examples of this are common, especially with regard to the dyspeptic and syphilitic, I refer of course to the superficial variety of syphilitic ulcer, the deep one being dependent upon the breaking down of a gumma tumour, but I also think that the cancerous ulcer may be determined by a similar cause, for it seems probable that many people, having the cancerous constitution, pass through life without the disease manifesting itself until they are exposed to some exciting cause, such, for example, as a blow on the female breast. Any local irritation will tend to keep up and materially affect the rapidity of the growth of any of these ulcers; it therefore behoves us in all cases of ulcer of the tongue, to examine into the state of the teeth, bearing in mind, that conditions which in health would give rise to no irritation, may in disease be the source of great discomfort and injury. If the rough edge of a tooth is discovered, it must be immediately filed down or otherwise rendered smooth. Where sharp cusps have existed, great relief has often been afforded by covering the teeth with some mechanical appliance, such as a smooth and highly polished vulcanite plate; and where the patient has been found to bite the tongue in consequence of the enlargement of that organ, this distressing source of discomfort has been obviated by capping some of the molar teeth with a simple artificial arrangement, by means of which the teeth are prevented from coming in contact when the jaws are brought together.

“Alveolar Abscess,” which is always dependent for its origin upon the teeth, in many cases gives rise to large collections of pus, which instead of bursting into the mouth through the external alveolar plate, as is usually the case,

often burrow into the substance of the maxillary bones, work their way through the soft tissues, and appear in situations very remote from the exciting cause of the mischief. Thus it is a common thing to find pus exuding through a fistulous opening, situated at the line of junction of the hard and soft palate. For this, at first, there seems no obvious cause, but on a closer examination it is found to proceed from a diseased incisor tooth; again, pus from the upper incisors may burst into the cavity of the nose, where in several cases, it has been mistaken and treated for ozena. Pus formed in connection with the lower incisors, may show itself beneath the chin, this in some cases has been the result of a blow received upon the tooth some months previous to the appearance of the discharge, and may be treated wrongly, the presence of dead bone being suspected. Again, a discharging sinus situated behind the angle of the jaw, may be due to a diseased wisdom tooth. In the upper jaw alveolar abscess in connection with the molars or second bicuspids frequently discharges itself into the antrum, giving rise to protrusion of the walls and perhaps temporary blindness. I may also mention that pus may also be found in the antrum, which is not due to the bursting of an alveolar abscess through its floor, but which is still due to the presence of diseased teeth, which themselves being inflamed, set up inflammation in the lining membrane of the antrum, which itself suppurates, giving rise to what is called an empyema.

The most frequent *external* situation of "Sinus," dependent for its origin upon diseased teeth, is along the lower margin of the lower jaw. In this situation, before the abscess has burst, it is frequently mistaken for enlarged gland, and it is therefore important in all doubtful cases to examine the mouth. When Sinus is established nothing short of the removal of the exciting cause will check the flow of discharge, or heal the wound, and this should be done without delay as fungus, like granulations, grow up around the orifices of sinuses, which give rise to unsightly sores and puckered cicatrices. In many cases the apex of a fang deeply buried in the gum and hidden from view, is quite sufficient to establish one of these. If the abscess comes under treatment when just about to open, the skin being tense and shiny and marked by a red spot, it must be painted with iodine, and the offending tooth must be

immediately removed; this will often prevent any disfigurement. When pus is found in the antrum, a communication with the mouth must be established, this is best done by the extraction of the tooth from which the pus has originated; the socket may then be easily perforated, and thus an opening is made, by means of which the antrum may be syringed out with Condy's fluid or a solution of carbolic acid; this must be done frequently. Mr. Salter has devised a small instrument which is of great use in these cases. It consists of a small metal plate, which is fitted to the mouth so as to cover over the opening leading into the antrum, and is attached with clasps to the neighbouring teeth. The plate is perforated, and to it is attached a small tube, one extremity of which enters into the antrum, the other communicates with the mouth through the perforation of the plate; this may be closed up when necessary, thus preventing the entrance of food or other irritating matters. The tube may also be used as the nozzle of the syringe in washing out the cavity. The external evacuation of many alveolar abscesses, is due to poultices and warm applications applied to the outside of the face; therefore it is a good rule never to allow patients to employ these means of alleviating toothache, unless they are under *close observation*.

I cannot conclude this paper, gentlemen, without briefly referring to traumatic haemorrhage, following the extraction of teeth, for which surgical advice is so frequently sought. It is a matter of considerable importance, having in some cases of haemorrhagic diathesis been attended with fatal results. Firmly applied pressure I believe to be the essential treatment, and this I apply in the following manner, which in the cases which I have had to treat, has been attended with successful results. After freeing the mouth from all clots, and washing it out with cold or iced water, I apply the finger firmly to the bleeding socket, so as in some measure, if possible, to check the flow, having previously prepared a small piece of cotton wool tightly rolled up, so as to resemble as far as possible the fang of the extracted tooth; this is dipped in a solution of gum mastic and wedged into the socket, where it eventually hardens; the number of plugs varies according to the number of fangs possessed by the tooth previously removed. I once more apply the finger over the plugs,

pressing them home, so to speak, and then adjust a piece of cork or gutta percha over them, wedging it in between the adjacent teeth and allowing its surface to remain, on a plane, slightly higher than the crowns of the other teeth; this being done the jaws are brought closely together and firmly secured in that position by bandaging.

In conclusion, gentlemen, I have only to thank you for your kind attention, and to apologise for having trespassed so long upon your valuable time.

The Use and Abuse of the Rubber Dam.

BY JAS. MERSON.

I SHOULD be glad to confirm the above assertion through your journal, feeling perfectly sure that with many operators the application of the dam is often tedious (if not a failure) to the operator and patient. I do not wish to write a long paper on it, but simply advocate its use, by alluding to the advantages derived, and its abuse in being handled by inexperienced hands.

I would suggest its application in every case where practicable, prior to even examining the tooth, for after once on, any annoyance with the saliva, breath, or even being called away, is overcome. I maintain that even in applying a temporary dressing of carbolic acid and mastic varnish, the drier the cavity is before its insertion, the more effectual. Another point is the rapidity with which one gets through his work, for whilst mopping out the cavity repeatedly with cotton wool, amadon, spongoid, or bibulous paper, the filling could have been inserted, and the patient dismissed. I notice the majority of dentists, (who casually look over the hospital when passing through town) watch with great interest the different modes adopted at our hospital of applying this valuable article. I have been repeatedly asked to give them an idea how to apply it in the easiest way. Judging from this I conclude that the rubber dam is used comparatively by few.

Perhaps my mode of putting it on will be interesting to the unskilled. Instead of placing the clamp on the tooth first, as is generally done, and the rubber dam stretched over it, which often proves irksome, by splitting the rubber,

I prefer making a hole in the rubber first, then I push the clamp through it, and apply the clamp and rubber at the same time. Then I push the rubber below the clamp, and proceed.

In putting a temporary dressing in, I invariably economize the rubber, by taking a small piece, then perforating a single hole, and slipping it over the tooth. This is all that is required when a short operation has to be done, more particularly with an upper central or lateral.

As to its abuse, I have often seen it condemned, in fact, more than once I have been discouraged, when trying to succeed with a fidgetty patient. Its failure is often due to either the miscalculation of the distance allowed between the holes, which should be regulated according to the separation in the teeth, too thick rubber dam, carelessness in making the holes, or in attempting to get it over three teeth, doing so one at a time, close up to the neck, which often splits the rubber, whereas it should be slipped over a third of each tooth first, and then gradually pushed together.

There are three thicknesses of rubber dam, namely, thick, medium, and thin, but I find the medium most useful—a convenient piece to cut off, and use, is about six inches square. Some will argue the point, that in private practice, the upper ten strongly object to having the rubber on, this I do not wish to dispute, but I have found with a little persuasion and explanation, that as a rule they will consent.

A Few Remarks on the Treatment of Exposed Nerves.

By G. HILDITCH HARDING, L.D.S.

IN the course of practice the dental surgeon is continually called upon to treat exposure of the dental pulp. This is generally the result of disintegration produced by caries, although occasionally it happens during the operation of excavating. In the latter case the pulp in the majority of instances presents the characteristic signs of being in a healthy condition, and can be capped at once, and the operation completed without any unfavourable symptoms afterwards arising. But when the pulp is not perfectly healthy, the operation becomes more complicated, and we have to decide whether it is possible or not to bring the

pulp into its normal and healthy condition. I do not wish to dwell on the diagnostic symptoms, as these are beautifully described in our text books. Where the preservation of the pulp is out of the question, its destruction must be brought about either by an operation for its removal entire, or by the use of some powerful application. The following is very effective in its results :—

R. Acidi arseniosi, gr. x.
Morphiæ sulphatis, gr. xx.
Crocoti, q. s.
Misce.

Many operators advocate the filling of the canals with gold, but I cannot help thinking there must be great uncertainty as to the fangs being thoroughly filled by this material ; especially in difficult cases ; as for instance in a second upper molar, where the cavity is situate on its distal surface, and all your work has to be done by the aid of the mirror. In a front incisor, where the canal is large, the case may be somewhat different. It would be interesting to know the actual results of a number of cases treated by this method, and I believe that in most instances if the tooth were afterwards broken up, it would be found that the gold introduced had not been thoroughly condensed, and the canal accurately filled as far as the apical foramen ; but of course such a conclusive test it is almost impossible to conduct. I have seen the most successful results obtained by plugging the canals with wool saturated in a thin mixture of oxychloride. This, by the use of suitable instruments, can, in the majority of cases, be with ease carried quite up to the end of the nerve canals, and in a few minutes sets quite hard, forming an accurately fitting plug. I have no doubt, however, that the different methods have all their respective advantages, and in the hands of certain operators good results may be obtained.

The subject I wished to speak of more especially, was that of the preservation of the pulp when exposed. This, I consider, is one of the most delicate operations performed in dental surgery, and, when successfully attempted, gives the greatest satisfaction both to the patient and operator, and a few years ago the permanent preservation of a tooth with an inflamed and exposed nerve was, I have no doubt, thought impracticable. When the nerve is in an inflammatory condition it should be treated with astringent and

slightly stimulating application. Phenate of Soda and Morphia I have generally found to produce the desired effect, applied on wool saturated in it, with about half or a third of a grain of Acetate of Morphia placed on the surface intended to be brought in contact with the exposed pulp. After dressing once or twice, with but few exceptions, the nerve has been brought into a fit state for capping. I think it is always advisable to paint the gum over the tooth treated, thoroughly with the following:—

R Tinct. Iodi. (Fort).
Tinct. Aconiti (Flemmings).
a a part: ∞ equal:

as it assists to reduce any inflammation in the soft structures in connection with the tooth. The bowels also ought to be regulated. I think it advisable after capping to fill over with some temporary stopping, so that in the event of the case not going on nicely it may be easily removed. Osteo plastic stopping I have not found so successful, as the chloride of zinc, being so powerful an escharotic in some cases, even produces the death of the pulp. In a number of cases I have with good results filled over the cap with the "best quality of quick-setting plaster of Paris;" indeed, in some cases I have placed it in contact with the nerve with good effect, introducing it in a rather liquid state. The cavity should be dry, and the rubber dam adjusted before its introduction. When it has set hard the superfluous should be cut away, leaving the floor of the cavity lined with it; the tooth can be at once filled with gold, or a temporary filling introduced, and replaced by a permanent one at a future period. The advantages of the plaster are, that it has no irritating properties, and when securely closed in by a filling remains intact, and lastly, sets so quickly that you are thereby enabled to complete the operation at the same sitting.

I have capped a few pulps with success with glue, taking a small piece and making it pliable and soft by holding it in the steam from boiling water, it can be introduced into the cavity, and made to adapt itself accurately to its shape and adhere firmly to the surface; as it gets cold it becomes hard enough to fill over. I am of opinion that the success of a case of nerve capping depends to a great extent upon the material used for the cap, and the manner of its adjustment; it should be made of some substance which does not

become affected by changes of temperature, and as little space as possible should exist between the cap and the pulp, at the same time avoiding any pressure upon this sensitive organ.

I trust these few remarks may prove interesting to some of your readers.

September 8th.

Acton, Stafford.

Case of Exfoliation of the Socket of a Tooth.

BY HARRY ROSE, L.D.S.

DENTAL SURGEON TO THE NATIONAL DENTAL AND THE METROPOLITAN FREE HOSPITAL OF LONDON.

THE patient, a lady, came to have the first left lower molar removed under the influence of nitrous oxide. It was in a very bad condition, nearly the whole of the crown being softened by caries. She took the gas very well, but made a very rapid recovery; unfortunately the tooth was fractured. The gas was administered again, and the elevator used for the extraction of the stumps, but again without success, as her almost instantaneous return to consciousness prevented a proper attempt being made. The patient being at the time in rather a weak state of health, it was deemed advisable to postpone further operations until some few days had elapsed, and she promised to call again. However, she did not, but went on a visit to some friends in the country to try and benefit her health. She was then suffering great pain, and was, to use her own words, nearly mad. The result was that extensive inflammation and suppuration had taken place, and in about a fortnight from the time of my first seeing her she noticed that the roots seemed to have risen from their places and become so loose that she was enabled to remove them with her thumb and finger, the sockets coming away likewise, one root was unfortunately lost, but the other is sent with this paper.

In conclusion, I may remark that I have seen and treated a great many cases of necrosis of portions of both the superior and inferior maxillæ, but those cases have been owing either to long continued inflammation and retention in the mouth of roots of teeth that kept up a constant discharge of matter, or where a syphilitic history has been distinctly traceable. But I have not before seen a case where inflammation has been followed so rapidly by suppuration and necrosis of the parts affected.

The Surgery of the Mouth.

BY FRANCIS MASON, F.R.C.S.

SENIOR ASSISTANT-SURGEON AND LECTURER ON ANATOMY AT ST. THOMAS'S HOSPITAL.

(Continued from Vol. 4, p. 128.)

DISEASES OF THE BONES OF THE FACE.—(Continued.)

VIII.—CARIES AND NECROSIS (concluded.)

Treatment.—Whatever be the cause of the necrosis, the treatment is based upon the ordinary principles of surgery. In the first place it is all-important to avert if possible the formation of a sequestrum, and this may be effected in some instances by making a free incision through the periosteum down to the bone. It is however seldom that the case is seen sufficiently early to enable the surgeon to carry out this plan of treatment. The incision when made relieves tension, and therefore allows the escape of the inflammatory exudation. Surgical interference is, however, imperatively demanded if there be pus under the periosteum, and an incision should be made from within the mouth. If the teeth become loose they must be extracted without delay, inasmuch as they are a source of irritation, and being irretrievably doomed only do harm if allowed to remain.

The extent of necrosis will depend upon the cause which gives rise to it; there may be a mere exfoliation or the whole thickness of the bone may be involved. The loosening and detachment of the sequestrum is a waste of time, nevertheless various local applications have been recommended to expedite the separation; thus nitrate of silver, either in the solid form or in solution, the acid nitrate of mercury, the mineral acid, either pure or in a diluted state (a weak solution of hydro-chloric acid was M. Chassaignac's favourite remedy) solid caustic potash, as recommended by Mr. De Morgan.* Iodine, red oxide of mercury, and the actual cautery have been employed with various results. The mercurial ointment mixed with soap chlorate may previously be applied to the skin so as to produce moderate excitement in the part, the irritation so produced being favourable to the process of exfoliation.† The actual cautery, too, has been used, and its direct

* *British Medical Journal*, Jan. 29, 1870, p. 105.

† "Stanley, Diseases of Bones," p. 118.

application to the bone is found to be unattended with any pain. Many years ago M. Sentien treated successfully cases of necrosis of the upper jaw in this way.* Dilute sulphuric acid was employed by M. Welpech, and within the last few years I have tried with excellent results a somewhat similar method described by Mr Pollock, of St. George's Hospital.† The exposed bone is touched daily with a solution of equal parts of strong sulphuric acid and water. The acid may also be applied pure. The cases in which I have used it have been principally examples of necrosis of the tibia, but I have also employed it in exfoliation of the upper and lower jaw, and of the frontal and other cranial bones. The effect of the application is to leave a white coating which can be peeled off. Mr. Pollock describes this white coating as "a soft slough from the surface of the bone, from which the phosphate and carbonate of lime have been largely if not entirely dissolved out." Further I have been struck with the little pain this application occasions, and I am prepared to support Mr. Pollock's statement, that when diluted the acid does not affect the soft tissues, even to the extent of uneasiness, nor does it produce the slightest subsequent irritation in them. It is, however, a singular fact, that it appears to act chemically on the diseased bone alone. Mr. Pollock refers to some interesting experiments made on four portions of bone:—

1st of dead bone, 10 grains.

2nd of diseased bone, 10 grains.

3rd of healthy bone, middle age, 10 grains.

4th of healthy bone, old age, 10 grains.

The above pieces of bone, after being exposed to the action of a mixture of sulphuric acid and water, one part in four, for three days at a temperature of 100° yielded the following results:—

1. Dead bone, phosphate of lime, 2 grains, carbonate of lime, 3·30, dissolved in the mixture.
2. Diseased bone, phosphate of lime, 2 grains, carbonate of lime, 1·3 grains, dissolved in the mixture.
- 3 and 4. In both specimens of healthy bone *no action took place.*

Lastly, Mr. Pollock claims as another advantage that it

* *Lancet*, 1829-30, vol i., p. 641.

† *Lancet*, May 28, 1870, p. 762.

is especially useful in the treatment of necrosis of the jaw, not only from the fact that it hastens the removal of the dead bone, but from its antiseptic properties it greatly modifies the abominable foetor which infects the breath of patients afflicted with this malady.

Another application—rather severe it is true—must be briefly referred to. It is known as the Liquor Villati. It was used in the case of a gentleman who had been under my observation for a time. He had several sequestra removed from his right tibia. In 1868 he consulted M. Nélaton, who injected some of the fluid above-mentioned into several fistulous tracts. It will suffice to say that although these fistulous tracts had been discharging for more than three years, one injection alone effected a cure. I herewith append the prescription as given by M. Notta, a hospital surgeon of Lisieux, in France, who used it "for injecting the tracts of sinuses and for caries." It is substantially the same as the patient showed me:—

Solution of subacetate of lead, $\frac{3}{4}$ i.

Crystallized sulphate of copper,

Crystallized sulphate of zinc, $\frac{1}{2}$ $\frac{3}{4}$ ss.

* White vinegar, $\frac{3}{4}$ 7.

In most cases the surgeon's aid becomes necessary, and when the sequestrum appears to be loose it may be removed with forceps. Any external incision should if possible be avoided, and if as in the case of the lower jaw, the whole bone is involved, it may be divided about the centre or at some suitable point, and each portion taken away separately. In some cases it is absolutely necessary to divide the skin, but the incision should be as limited as the nature of the case will permit. No definite rule can be laid down as to the time for removing the sequestrum. Most English surgeons wait until it is fairly loose, but some French and German surgeons are opposed to this delay. Thus Willroth is of opinion that if the affection is likely to be of long duration, the surgeon should not wait until the part is movable, but he should operate within 6 or 8 months after the commencement of the disease, and M. Richet[†] states that if the patient's health is good, operation is advisable.

With regard to *constitutional treatment*, the patient should

* *Lancet*, April 14, 1866, p. 397.

† "Gaz. des Hopitaux," Juin, 1872.

have a light, nutritious, and digestible diet. Wine and beer may be allowed provided they do not excite fever, or induce a flushed face. As medicines, diffusible stimulants such as carbonate of ammonia, 3 to 4 grains to an ounce of the infusion of bark, and subsequently the mineral acid.* The preparations of iron have also been carefully employed, but from some cause, in a patient who was under Mr. Simon, the citrate, sulphate and perchloride of iron all respectively purged the man violently. Cod liver oil, too, may be given; it should be administered immediately after meals so as to mix with the food, but the practitioner has in many instances no little difficulty in selecting the proper time for the patient to take this—which may justly be termed—article of diet. It often occasions nausea, which may be obviated by the patient swallowing his dose at bed time. Local cleanliness must, moreover, not be neglected, and the foetor of the breath may be to a great extent neutralized by antiseptic preparations, and there are no better than lotions or washes, composed of liq: potassæ permanganatis (5ss or 3i ad Oj) or the liq: sodæ chloratæ (3i ad 56 or 58). Dr. Giessler recommended a lotion of quinine (gr. 1 to 4, ad aqua 3i)† The supposed disastrous effects arising from the patient swallowing the purulent discharges have been greatly exaggerated. I have myself seen cases of necrosis of the jaws of several years' standing, in which excepting for the local disease, the patient has been in very fair health.

Reference has already been made to the extreme deformity that follows the exfoliation of necrosed bone, not the least of which is the unsightly adhesions which occasion a "tucking in" of the skin. In most instances such a deformity is easily removed by introducing a teotomy knife subcutaneously, and dividing the contracting band of cicatrix. Many such examples have come under my own observation, in which adhesions have been connected with the different bones of the face, and Mr. Roger Bell showed at the Medical Society of London a patient in whom this practice had been very effectually carried out.‡

* In a case under the care of Mr. Taylor, of Nottingham, muriatic acid was strongly recommended. *Lancet*, vol. 2, 1849, p. 498.

† "Archiv für Klin. Chirurg.", Band 4, Heft 3, B.M.J., vol. i, 1864, p. 95.

‡ "Med. Soc. Proceedings," vol. i, p. 133.

With regard to the reproduction of the jaw after complete or partial exfoliation, it has been already stated that in some cases a very good substitute is formed. In other instances there seems to be a regeneration of the teeth. Mr. Wm. Sharp had such a case in the Bradford Infirmary. It was an example of necrosis of the lower jaw. The disease appeared to arise from a fungus at the root of the posterior bicuspid on the left side of the upper jaw. He says that after the operation "I asked the patient, a girl aged 20, to open her mouth, when to my very agreeable surprise I found the entire set of excellent teeth (with the single exception of the one I had extracted) perfectly fast and in their proper places."* Another equally interesting example is reported in Graëfe u Walther's Journal† of regeneration of teeth after necrosis of the upper jaw. The patient was a boy aged 11, who had abscesses connected with the teeth. A probe could be passed into the antrum. No less than 72 pieces of bone exfoliated, and they consisted of the alveolar process and nasal process of the superior maxillary bone, the lachrymal and nasal bones of the right side. The patient got pretty well, but eight months after, after some pain, 3 molar teeth protruded."

One word as to the prevention of phosphorus necrosis. Mr. Simon in his report states that the dangers belonging to the phosphorus industry belong exclusively to working with phosphorus. Working with amorphous phosphorus is unattended with danger. He then refers to the patent of Messrs. Bryant & May, and I may add that by the courtesy of that firm, I had the opportunity of visiting their factory in July, 1875. I was much struck with the perfect system of ventilation, owing to which there was scarcely a trace of phosphorus in the atmosphere. I was informed that they had had only one decided case of necrosis in ten years, and this arose from great neglect and disobedience on the part of the individual. Failing good ventilation, which is of the first importance, various preventives have been suggested. It has been proposed "to place plates and saucers filled with turpentine in sufficient numbers in the drying room. Thus the noxious vapours will be taken up and be dissolved by the fluid, so that the air may be

* "Med. Chi. Jo." fo. 1844, vol. 27.

† *Lancet*, vol. 14, p. 45.

breathed with impunity."* Again it is supposed that a free exposure of lime in the chamber would remove much of the noxious gas from the atmosphere, and that lime water should be used for washing out the mouth.† Mr. Salter being so strongly impressed with the idea that the disease depends upon carious teeth directs that "those having faulty teeth should be excluded from the dipping and drying rooms, and that all carious teeth should be extracted or plugged." He further advises the use of respirators.‡

A case of Oral Surgery.

By J. H. M'QUILLEN, M.D., D.D.S.,

PROFESSOR OF PHYSIOLOGY IN PHILADELPHIA DENTAL COLLEGE.

(Read before the Pennsylvania State Dental Society, July 18th, 1875.)

We are indebted to the editor of the *Dental Cosmos* for the woodcuts illustrating this paper.

DURING the late civil war, the following interesting surgical case which came under my care was seen during the course of treatment by several professional friends; among them, Profs. D. Hayes Agnew, Jas. E. Garretson, and J. Foster Flagg. I have frequently been urged to publish a report of the case, but have not found it convenient to do so until the present time. John McGouisk, aged forty-two, a native of Ireland, drafted into the 83rd Regiment Pennsylvania Volunteers, was wounded at the battle of Cold Harbor, Wilderness of Virginia, June 2nd, 1864, by the explosion of a shell. A fragment of the shell struck him in the face, inflicting a wound of great severity and attended by profuse hemorrhage. On being carried to the rear, the surgeon said that he could only live an hour and a half. This prediction, however, was not verified, as he was sent from the field hospital to Alexandria, and then to McClellan U. S. A. Hospital in Philadelphia, where he first came under my notice. I did not see him until some six weeks after he had been wounded, when I was requested by Dr. H. B. Buehler, in whose ward he was, to visit him at the hospital. At that time he was in a very critical condition. The wound had healed, leaving a V-shaped fissure in the upper lip (Fig. 1), extending into the right anterior nares. A portion of the lower lip had been lost, and what was left had fallen in and become adherent to the jaw. The incisors, canines, bicuspids, and their alveolar processes in the upper and lower maxillæ had been carried away by the fragment of shell, leaving also a compound fracture of the lower jaw. The under surface of the tongue, from the tip, had become adherent to the lower jaw, while the fractured ends of the maxillæ were drawn toward each other by the contraction of the mylo-hoid muscle. The pressure of the lower molar teeth on the sides of the tongue produced constant irritation of that organ, which was very much swollen,

* *Medical Times*, vol. 20, 1849, p. 394.

† *Lancet*, vol. 2, 1846, p. 248.

‡ "Op. cit.," p. 295.

so much so as to interfere with respiration. It was with great difficulty that the patient could swallow, being restricted to soft food. He could not articulate a word, and was compelled to make known his wants by writing on a slate. At the same time saliva mixed with mucus and pus was constantly trickling from his mouth on to the breast, soiling his clothes, and making him not only unsightly but exceedingly offensive, on account of the unpleasant odour.

Under his chin there was an abscess of considerable size. Owing to his inability to take the amount of food that the system required, the defective alimentation was attended by a wasted condition of the body. The first indication in regard to treatment on my part was to take the pressure from the tongue by propping apart the fractured ends of the



FIG. 1.

lower jaw. To accomplish this I decided to take an impression of the molar teeth with a piece of softened wax. There was no difficulty in applying the wax to the molar teeth on the right side, but on attempting to remove it I found that it could not be done, on account of a cicatricial band extending from the upper to the lower jaw, restricting the downward movement of the latter.

After two or three ineffectual efforts, I pressed the jaw inward and easily removed the wax. An impression of the molar teeth on the left side was then taken. Having made a plaster model from these, two pieces of half-round silver wire were bent in the shape of a horse-shoe and soldered together in the middle, but leaving free extremities that could be applied around the molar teeth in the form of bands, as per accompanying Fig. 2.

The application of this was attended by a sense of great relief to the patient. The pressure upon and irritation of the tongue were thus removed, and, in the course of two or three days, that organ was restored to its normal size, and respiration and deglutition were markedly improved. The patient, who was in the habit of visiting my office every day, suffered considerable annoyance from the mucous, saliva, and pus trickling out of the mouth upon his clothes, and from the abscess under the jaw. In examining the mouth, I discovered a portion of necrosed bone of considerable size, the presence of which was a constant irritation to the soft parts, and maintained a fistulous opening in the mouth and another under the chin. I directed Dr. Buehler's attention to the necrosed bone, and he desired me to remove it and perform any other operations that were needed; placing the patient entirely under my charge. The fistulous opening in the mouth was enlarged with a bistoury, and the necrosed portion easily removed with a pair of forceps. I found that it was a portion of the base of the lower jaw, extending from the symphysis to the first molar tooth on the left side. A week after the removal, the abscess entirely disappeared and the oral secretions assumed their normal character, but still flowed out of the mouth. At the expiration of this time I proposed to the patient to have the V-shaped fissure in the upper lip closed by a surgical operation. To this he readily assented, and I performed the operation as follows: With a thin bistoury the edges of the V-shaped space were pared away so as to leave a raw surface; two bare

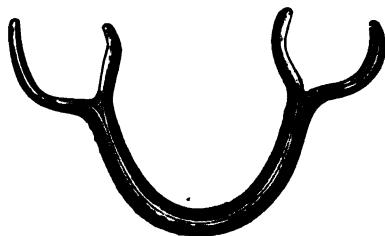


FIG. 2.

lip pins were then introduced, and the freshened ends brought and held together by figure-of-eight sutures. The right side of the V-shaped space was formed by a portion of the cicatricial tissue already mentioned, in which the circulation was quite languid, and I was somewhat apprehensive that perfect union of the parts could not be effected; but, on removing the pins two days after the operation, was gratified to find that they had become united. The success attending this prompted me to perform an operation with the view of restoring to the patient his speech, and, if possible, improving the condition of the lower lip. Preparatory to this I removed the remaining teeth in the upper and lower jaws, as they were of no service.

After the gums had healed, I operated upon the tongue and lower lip as follows: An incision an inch and a half in length and an inch in depth was made on the posterior side of the lower jaw, severing the unnatural relation existing between it and the tongue; this liberated that organ, and he was able to protrude the end of the tongue from the mouth.

What remained of the lower lip was then carefully dissected up from the lower jaw.

An impression of the lower jaw was taken in wax, with the view of having a hard rubber fixture constructed that could rest upon it, serve as a support to the under lip, and counteract the natural tendency of the part to fall back into its old position; a tendency favored alike by gravitation and the well-known disposition of cicatricial tissue to contract. The wax model was placed in the hands of a mechanical dentist residing in the neighbourhood to make the proposed fixture; but, after waiting some time for it, he returned with a spongy mass that could not be used, and I was compelled to proceed without any support. The edges of the lip on each side were attached to the adjacent soft parts by means of metallic sutures. For two days the indications were quite favourable



FIG. 3.

for perfect union, which would have left an opening of somewhat limited size to the oral cavity in comparison with the mouth originally. At the expiration of this time, however, some of the sutures sloughed out, and a portion of the lip was drawn back into its abnormal position.

Although not entirely successful, important results were gained by the operation: the flow of saliva and mucus from the mouth was arrested, and in three or four days he was enabled to speak freely and do entirely without the slate, which had heretofore been indispensable in communicating his thoughts and making known his wants. His appearance was markedly improved (Fig. 3).

The patient is now living in Lancaster, Pa., in the enjoyment of excellent health.

Ankylosis of Temporo-Maxillary Articulation of long standing: fracture of right Condyle: Atrophy of the Depressors and Contraction of the Elevator Muscle of the Inferior Maxillary.*

BY D. H. GOODWILLIE, M.D., D.D.S.

THE following interesting case was sent to me by Dr. L. A. Sayre, and it so well illustrates the treatment of such cases that I embrace this opportunity to present it.

The history, as far as I am able to make out, is as follows:—Mary C., of Tennessee, aged ten years, in May, 1870, five years ago, fell over the banisters to the floor below, and when she was taken up there was hemorrhage from the mouth and from a wound on the chin.

A dislocation of the inferior maxillary and a fracture of the right condyle were diagnosed by the surgeon who was called in the next morning. There was very much swelling over the articulations, particularly on the fractured side. The swelling and discolouration extended down on the neck and up on the side of the head. After inflammation subsided, motion was not again re-established, and the jaws remained closed. In October of the following year the mouth was forced open at one operation more than an inch, but when the inflammation subsided the jaws became closed as before, and so remained until she came under treatment last October.

The appearance of the case when it came under my care was as follows:—The superior jaw in front considerably overhung the lower jaw. There was a large prominence over the articulations, particularly on the side of the fracture. The meatus auditorius externus was considerably smaller on this side than on the other, which probably accounted for the dullness of hearing that she had. A scar was seen on the symphysis, extending more to the left of it than to the right.

The depressors of the lower jaw, viz., the anterior belly of the digastric mylo-hyoid and genio-hyoid, were very much atrophied by fatty degeneration, giving her the appearance of what is commonly called a double chin. The contraction of the muscles could only be excited by a powerful primary current of electricity. She had apparently lost all volition over these muscles. There was a firm contraction of the elevator muscles of the jaw, particularly the masseter and temporals of the fractured side. The large amount of callus thrown out at the fracture had bound the muscles very much together.

On looking into the cheeks the jaws are seen firmly closed on each other, the back teeth only touching, and that on the point of their cusps; they do not lock each other, as is normal.

The inferior maxillary appears to be well developed, and the teeth are quite regular. All the deciduous teeth are gone, and the permanent ones that appear at her age, with the exception of a bicuspid on the right side, are present. All the opposing teeth of the upper jaw are present with the exception of the right canine, the deciduous one still remaining, but loose.

* Read before the New York Medical Library and Journal Association, May 21, 1873.

All the permanent teeth, with these exceptions, are present, from the first molars forward.

The superior and inferior front teeth do not touch each other when the mouth closes, for the reason that, from the great force received on the chin at the fall, the condyles were forced upward and backward, so that the whole lower jaw is set back on the superior about one-quarter of an inch. This not only destroys the right articulation of the teeth, but the front one are unable to close upon each other at all. Through this space she took her food, which was in liquid form or very soft. As the blow on the symphysis was received a little to the left, the effect of the force was very great at the right joint, so that there was a fracture of the condyle, and the head of the condyle was forced in upon the meatus and dislocated outward. This lateral displacement was also present on the left side, but it is not now so apparent.

On passing my finger into the cheek of the fractured side I found that the anterior fibres of the masseter muscle had been torn from their origin upon the malar bone, and now the anterior portion of the muscle was about on a line with the union of the malar with zygoma. This muscle is very rigid, both from a structural change in the muscular fibres, and from the great amount of plastic material from the fracture binding these together. Whether the anterior fibres of this masseter were torn from their attachment to the malar bone at the time of the accident, or at the time when the mouth was forced open some three years ago, I am unable to say positively, but I am inclined to think they were fractured at the latter time, as then the muscular fibres, having lost to a great extent their contractility, would be more liable to break than at the time of the accident. The left masseter was in a much better condition. In her endeavours to depress the lower jaw, the hyoid bone, instead of being made a fixed point from which the depressor muscles act, was raised, and the fixed point was at the sternum. The platysma myoides was brought into action and drew down the angles of the mouth, and the tongue was depressed by the action of the hyo-glossus and genio-hyo-glossus. These muscles are only the accessory dépressors of the lower jaw, and in action raise the hyoid bone, whereas, if the depressors act, the hyoid bone remains a fixed point.

The condition of an articulation or muscle may be known by means of auscultation. In a healthy articulation little or no friction-sound should be heard. But when deposits are present, or there is a lack of synovia in the joint, the friction-sounds can be distinctly heard during motion. These sounds will be greater or less according to the amount of disease, and will disappear as health is restored to the joint.

A muscle in health has friction sounds, which may be heard by any one applying his ear to the biceps for instance, when in motion. These friction-sounds will vary according to the length, breadth, thickness, and condition of the muscle and the portion auscultated. A muscle in which there has been structural change will of necessity show a defect in the friction-sounds according to the amount of this change. As the function of the muscle is restored, so will the friction-sounds appear.

It will be seen by the above history and diagnosis that I had a case of unusual interest, inasmuch as I had to deal with ankylosed joints, atrophied depressor, and contracted elevator muscles. The certain properties that these muscles possess in their normal condition, such as irritability, tonicity, elasticity, and extensibility, when lost can only be restored by a

gradual process. It is my experience, in all cases of fibrous ankylosis of this articulation of long standing, that the pathological condition of the muscles is a point on which turns success or failure in the treatment. Without *good muscular action* following the breaking up of an ankylosis, we need not look for success. I have never seen it.

Treatment.—By proper treatment after this accident the dislocated and fractured inferior maxillary could have been replaced and motion again re-established.

I first saw the patient on the 19th of October last. In order to make out a correct diagnosis, I put the patient under the full *anæsthetic* effect of nitrous oxide. I could detect the slightest motion in the joint, and found the elevator muscles very rigid, particularly on the fractured side. I then decided to make gradual extension every day, but not to the point of getting up any amount of inflammation, so that every day some little advance could be made.

In order to relieve my young patient of some amount of suffering during the long time it would require to treat the case, I determined to administer nitrous oxide every other day to begin with, and manipulate the muscles and joint under its effect; on the alternate days to



FIG. 1.

go as far as the sensibilities of my patient would allow. But during the latter part of the treatment, when the depressors had become developed, the *anæsthetic* was administered nearly every day. Electricity was used daily, and a portion of each visit I used my fingers as electrodes in order that I might knead, rub, and roll the muscles. At first, however, the atrophied muscles required a stronger current than I could bear in my hands, but, as they became developed, the strength of the current was gradually diminished.

It now became necessary to have an apparatus for the gradual extension of the elevators, and the exercise so much needed in the development of the atrophied depressor muscles, and at the same time to break up the ankylosis.

Such an apparatus as has met this requirement will be seen in Fig. 1. One of the chief sources of interruption in treatment is periodontitis from the great amount of force used on the teeth. To prevent this, I protect them with an interdental splint of hard rubber. These splints at first are necessarily very small, and confined to the front teeth; but, as the case progresses, longer and more perfect ones are made.

In this case the rubber splints were inclosed in metal splints made of German silver, as this metal is tough and unyielding. These splints were

made fast to the teeth by straps that passed from strong wire arms at the sides to a skull-cap, and the lower one was strapped to a pad on the chin.

This pad was also attached to the lower splint by means of a ratchet and spring.



FIG. 2.

From the point of each splint an arm, three-fourths of an inch broad, extends out one and a quarter inch, and to these is clasped the oral speculum when in use (see fig. 1). The inclined planes of the speculum pass in between these arms, and they are held by clasps. The inclined planes are attached by moveable joints to a distending forceps, so that when the handles are approximate, the inclined planes are separated at their attached ends. Each handle is made in two sections, and the spring that separates the handle is enclosed between them to protect them from injury.

In forcing the speculum between the splints, the instrument is grasped by one of the handles, and when in place both handles are approximated. If more force is desired, or the mouth is to be held open at any point, the crew at the handle may be used.

In stretching the masseter and temporal muscles I use an oral speculum that I devised some years ago (fig. 2), as it has a great deal of power. It consists of a shaft, to the flat end of which are attached two wings or inclined planes, upon which the teeth rest. The other end of the shaft has a thread cut on it, and a screw; this passes through a handle, one end of which is wedge-shaped. By turning the screw on the other end of the handle, the inclined planes diverge or converge.



FIG. 3.

Fig. 3 represents a spiral-spring speculum for the patients to exercise on by placing it between the teeth and biting upon it. Longer springs are used as the mouth gradually opens.

During the first few weeks of treatment the mouth was opened a little space and new splints made.

The following is a note of the treatment from time to time:

December 16th.—She begins to have a slight control of the atrophied muscles. Can put the tongue out of the mouth a short distance.

18th.—She put a teaspoon into her mouth for the first time since she received the accident.

January 1, 1875.—Mouth now opened three-eighths of an inch, with good motion, but not altogether by the action of the direct depressors. Patient complains of soreness over the masseter and temporal muscles.

11th.—Yesterday used considerable force under the anæsthetic. To-day complains of pain in right joint and muscles.

15th.—Patient says her jaw feels loose; by which she means that she has better control of it. At this time the atrophied depressors show some increased development, but she has very little volition in them, and so she uses the accessory depressors to open her mouth. In order to paralyse these muscles and bring the direct depressors into action, I directed her on all occasions at exercise to keep the tip of the tongue and the lower lip up against the lower incisor teeth. By this means the hyoid bone was made a fixed point from which the direct depressors act.

February 15th.—Volition returning in the atrophied depressors. Good natural motion one-half inch, and, after exercise with instrument, five-eights of an inch.

March 16th.—Good natural motion five-eighths of an inch. Strength of electrical current much less. It is decreased as the atrophied muscles develop strength. I discovered, on looking into the mouth, that there was some loss of power in muscles of the tongue, particularly the palato-glossus. Patient speaks thick, as though the tongue were too large. Applied electrical current.

April 6th.—Patient complained of periodontitis from the force used yesterday. She caught cold by exposure yesterday. This passed off in a day or two, without interrupting treatment.

19th.—As there was great rigidity in the masseter of the fractured side, I performed myotomy under nitrous oxide, in the following manner: I passed my left index-finger inside and pulled the cheek out, the end of my finger resting on the anterior fibres of the superficial portion, a little below the middle. I pierced the sheath of the muscle, and passed the blade of the myotomy-knife up between the deep and superficial portions of the muscle.

My object in this was to free, if possible, the two portions of the muscle by dividing the interstitial tissue that might bind them. It was not my intention to cut any fibres of the muscle.

22nd.—Swelling and soreness gone from the masseter. The mouth does not open any wider by this operation, but the motion is considerably improved.

May 5th.—Performed myotomy again the same manner as before, and, followed by the diligent use of the spiral spring speculum, have improved both motion and extension.

15th.—Have now good motion seven-eighths of an inch, measurement taken between the points of the superior and inferior incisors. Tongue can now be put well out of the mouth, and she speaks better.

It is now only a matter of a little further time in continuing the treatment to get the mouth opened sufficiently wide. After I dismiss her I will advise the frequent use of the spiral spring speculum and electricity for some time, until action of the muscle is well established.* During

* June 5th.—The mouth now opens one inch, with good motion. Myotomy was again performed, separating the posterior fibres of the masseter. The result was as

this long treatment I have taken care not to overdo, so that every day the treatment was carried on with scarcely a day's interruption. I have seen the patient every week-day, and hourly exercise has been kept up during the day at home, first by using wedges of pure India-rubber, and, after the mouth was somewhat open, by the spiral-spring speculum.

It is only by this persevering treatment that any success can be expected. The age of this patient may be in her favour as regards the vital changes, but in other respects it was not favourable. It is very difficult to make children take the proper exercise, to the point of considerable suffering, as is required. They must be under constant observation. This is not so necessary in an intelligent adult, as then the direction can be carried out by the patient.

I have administered the nitrous oxide to this patient up to this time 120 times, giving more than 600 gallons of gas. I am at present giving it every day. There is no apparent harm, and she is in better bodily condition now than when she came under treatment. Her weight has increased.

This anæsthetic seems almost indispensable in the treatment of these cases.

CASE II. Ankylosis and Contracted Elevator Muscles.—The following case was one of two and a half years' standing before I saw it. I give it as showing the result of treatment:—

In March, 1872, Miss M. K., of Brooklyn, aged twenty-one years, came to consult me concerning her closed mouth. Had some time previous an attack of acute tonsillitis of both sides. The inflammation extended to the temporo-maxillary articulation; the result was closure of the mouth. Masseters very rigid. Patient had also suffered from several ulcerated upper molar teeth, which had something to do with this condition.

With her past experience, and a dread that it would last her lifetime, she was now a most willing patient.

Treatment was commenced and carried on for six months, and she was discharged entirely well. She sent me word a short time ago that she had now the free and full use of her jaws, after a lapse of more than three years.

Circulation in the Dental Tissues.

ANYTHING like a thorough study of the minute structure of the teeth will reveal the fact that all portions of a tooth are more or less intimately united by a system of lakes, canals and other larger or smaller areas, of fluids, by which blood plasma entering at any one dentinal canal, dental lacuna or other microscopical sea, may be able to pass through this irrigating system to the most remote points from which it commenced its course, and also return again to the point from which it started, either wholly or partially by another route.

We may observe that the deciduous tooth is more highly organized than the permanent one, viz: a system of more open or larger canals and lakes, and a lingering among its tissues of the original formative cells,

favourable as on previous operations. Speech much improved. Extracted decayed first left inferior permanent molar.

ready at the proper time to take down the structure they once built, when it is no longer desired in the oral cavity.

The fact that resorption of the enamel itself takes place in the shedding of deciduous teeth goes a long way towards proving the permeability of that tissue to circulating fluids.

Even, if there was no open communication between dentine, cementum and enamel, the fact that all of these tissues have an animal membrane for their basis would insure a circulation of fluids through them by the process of exosmosis and endosmosis, while the specific gravity of the teeth is no greater than it is. And I think it is allowable for me to go further, and say that even if the tooth was a homogeneous structure, and composed of the same organic and inorganic materials as at present, with the same specific gravity, even then there could be a passage of fluids from one portion of the exterior to another portion of its interior.

In dental circulation we have—there is every reason to believe—osmotic and capillary attraction to carry the blood plasma along. Besides the force of the arterial wave, which is felt in the pericementum and in the dental pulp, and which transfers its momentum more or less to the currents of the canicular and lacuna systems, there is yet a powerful force set free to act in the pressure of the teeth roots in the alveoli by the forcible occlusion of the teeth in the acts of mastication, thereby compressing their arteries and forcing the plasma onward.—*The Missouri Dental Journal.*

The Dental Hospital of London Medical School.

THE annual distribution of prizes to the students at the Dental Hospital of London took place at Willis's Rooms on Monday last; Sir James Paget, F.R.S., President of the Royal College of Surgeons, in the chair. It had originally been intended to hold the meeting at the Hospital in Leicester-square, but the number of acceptances to the invitations issued by the medical officers was so large, that the Dean of the School, knowing that all could not have been accommodated in the largest room of the Hospital, very prudently changed the place of meeting to Willis's Rooms. Precisely at the hour appointed, the President commenced the business of the meeting by calling on the Dean to read the report for the past year. In his report the Dean alluded to the great and increased prosperity which had attended the London School of Dental Surgery since the removal of the Hospital from Soho to Leicester-square. The number of students had largely increased, and they had been successful in passing nearly all the candidates they had sent to the College of Surgeons for the Licentiate in Dental Surgery. At the conclusion of the reading of the report, the Dean introduced the success-

ful competitors for the prizes offered by him for the best reports of cases of treatment of the exposed dental pulp. The prizemen in this section were Messrs. Whatford, Tod, and Harding, and their prizes were delivered to them by Mr. Luther Holden, who addressed a few appropriate remarks to each. In the Metallurgy Class Mr. F. J. Bennett was the only prizeman; and in this case the presentation was made by Sir Benjamin Brodie, F.R.S., who seized the opportunity to impress on his hearers the importance of studying other branches of chemistry in association with that of metallurgy, and suggested the possibility of chemistry affording the means of preventing caries of the teeth. The prizemen in Mr. Turner's class on Dental Mechanics were Mr. Mason, first; Mr. Whatford, second; and Mr. Pearman, third. In Mr. C. S. Tomes's class of Dental Anatomy and Physiology, the prizemen were Messrs. Mason, Whatford, and W. H. Fox. These gentlemen received their prizes from Dr. Carpenter, F.R.S., who, after congratulating them on their success, alluded to the great impetus that had been given to the study of the histology of the teeth since the discovery of the achromatic microscope. The remaining prizemen were those who distinguished themselves in Mr. S. H. Cartwright's class of Dental Surgery and Pathology, viz.:—Mr. Mason, first; Mr. W. C. S. Bennett, second; Mr. Whatford, and Mr. W. H. Fox. The prizes were presented to these gentlemen by Mr. Cartwright, senior; after which Sir James Paget delivered a brief but forcible address to the students, in which, having congratulated those who had been successful in winning prizes, he urged them all to prepare themselves for the examinations they would each have to undergo after their student-days were over, so that they might secure for themselves the prize we all so much covet—viz., success in life. By success in life he did not mean the acquisition of money. The amount of yearly income of a professional man gave a very inadequate and often erroneous notion as to a man's success. There were fair and unfair ways of making money, and many, he feared, were unscrupulous as to how they made money. Against practices of an unscrupulous nature he urged his hearers to be on their guard, and to avoid all unfair means of getting fees. The temptation to do so, he knew, was very great, for the careers of some, apparently highly successful men, showed

that the public often thought more of the low, unscrupulous, advertizing man than they did of one who endeavoured faithfully, and without parade, to discharge his duty towards them. There were better rewards than money to be gained in the medical and dental professions—such as a high reputation for scientific attainments, high social position, the respect of one's colleagues, and lastly, the consciousness of having faithfully discharged one's duty. The President was much applauded during the delivery of his address, and at its conclusion a vote of thanks was carried unanimously. The medical officers of the Dental Hospital are to be congratulated on the great success of the meeting. It is seldom that we see such a large and fashionable audience at a medical meeting as that which crowded the Large Hall at Willis's on Monday afternoon.

LONDON DENTAL HOSPITAL.

CASES TREATED FROM SEPT. 1ST TO SEPT. 30TH, 1875.					
Extractions.	Children	under	14	...	415
	Adults	...	...	...	748
Under Nitrous Oxide	...	...	...	...	170
Gold Stoppings	...	...	...	...	187
White Foil ditto	...	...	...	...	16
Plastic ditto	...	...	...	...	154
Irregularities of the Teeth treated surgically and me- chanically	...	...	...	...	17
Miscellaneous Cases	...	...	...	...	163
Advice Cases	...	...	...	...	116
				Total	1986

JAMES MERSON, *Dental House Surgeon.*

Reviews.

Vernon Galbray, or The Empiric—the History of a Quack Doctor.
(Whitfield, Strand.)

THIS is a nicely written little story brought out with the aim, to quote the preface, of "exposing the disgraceful frauds practised upon the public by the horde of charlatans who call themselves dentists." It brings to light many of the ways in which quack dentists practise not only on the mouths, but also upon the pockets of the public, and there is a slender vein of interest running through the book apart from the prime object of

its writer. But we fear the evil is too strong to be cured by shilling stories, and the attempt to put a stop to it by such publications—though highly praiseworthy—reminds us of the gentleman who proposed, and, we believe, attempted to tame some fine rattlesnakes that had been given to him by ordering a plentiful supply of bath buns.

Correspondence.

We do not hold ourselves responsible for the views expressed by our Correspondents.

TO THE EDITOR OF "THE MONTHLY REVIEW OF DENTAL SURGERY."

SIR,—Let us hope that the late meeting in Manchester, to prevent any more unqualified persons from entering the Dental profession, may be followed by a similar agitation in other towns. There are many conscientious unqualified men in practice no doubt, and it is important that such should lose no time in taking advantage of the great consideration offered them by the College. The question, however, "What is to be done to give the ordinary public the means of distinguishing the qualified dental surgeon from the shameless charlatan?" seems hopelessly abandoned, and the next generation under such circumstances must alone reap the benefit. I would suggest, however, a revival of the subject, and, meanwhile, as a somewhat effective guide to "who's who," I propose that the arms of the Royal College of Surgeons be worked into a distinct design, that those entitled to use it may do so in the style of a crest, which might be placed upon door-plate, cards, note-headings, and so forth.

I am, Sir,
Your obedient servant,
A. A.

Contents of our "Exchanges."

Johnstons' Dental Miscellany, August, 1875.

Nutrition. By W. Irving Thayer, D.D.S.—Notes on the Verdict of a Coroner's Jury, Hemlock a Poison. By A. C. Castle, M.D.—New York Odontological Society.—Some of the Properties of Amalgama. By Mr. Brownley.—Bromine.—Artificial Butter.—Circular.

NOTES.—Resolution.—American Academy of Dental Science.—A Dental Performance.—Vegetable Germs the Cause of Hay-Fever.—Production of Oxone.—Japanese Paper.

The Dental Cosmos, August, 1875.

ORIGINAL COMMUNICATIONS.—Dental Pathology and Therapeutics. By J. Foster Flagg, D.D.S.—A Case of Oral Surgery. By J. H. McQuillen, M.D., D.D.S.—The Union of Tin and Gold in Filling Teeth. By N. S. Jenkins, D.D.S.—Artificial Crowns. By H. C. Register, M.D., D.D.S.

PROCEEDINGS OF DENTAL SOCIETIES.—New York Odontological Society.—First Judicial District Dental Society.—Georgia State Dental Society.—South Carolina State Dental Association.—Union Convention of the Massachusetts Dental Society and the Merrimack Valley Dental Association.—The American Academy of Dental Surgery.—American Dental Association.—The American Dental Convention.

EDITORIAL.—Reports of Societies.—Dental Education.—The Annual Convocations.—Two Thousand Years After.

PERISCOPE.—Dental Education in America.—Dental Colleges.—Sub-lingual Cancroid Ulcer.—Rose's Method in Operations upon the Jaws.—Anæsthetics in France.—Prof. Schiff on Ether and Chloroform.—Cases treated at London Dental Hospital (April).—Cases treated at the London Dental Hospital (May).—Salicylic Acid.—Thymol as an Antiseptic and Antifermentative.—Bicarbonate of Soda in Toothache.—The So-called Third Dentition.—Pivoting of Teeth.—Celluloid Plates.—Celluloid.

HINTS AND QUERIES.

The Pennsylvania Journal of Dental Science, August, 1875.

ORIGINAL COMMUNICATIONS.—A Few Facts from Salter.

DENTAL SOCIETIES.—Pennsylvania State Dental Society: Minutes of Transactions—Reports of Officers and Committees—Reports of Delegates to other Associations—New Business—Election of Officers.

SELECTIONS.—The New Chemistry. Dr. W. S. Elliott.

PRACTICAL AND SCIENTIFIC BREVITIES.—Amalgam.—Salicylic Acid.—Celluloid.

NOTICES.—The American Dental Convention.

EDITORIAL.—Dental Education.—Remittances.—How we Apples Swim.

The Missouri Dental Journal. July, 1875.

The Treatment of Exposed Pulp in Filling Teeth.—Alternation & Law of Vital Powers.—Seventh Annual Session of the Southern Dental Association.—Dental Specimens for the Microscope.—The Michigan Appropriation.—Teeth during Pregnancy.—American Dental Association. Report of Dental Societies.—Celluloid.—American Dental Convention.—Obituary.—The true spirit of Progress.

Correspondenz-Blatt für Zahnärzte. July, 1875.

INHALT.—Die Ursachen der Unregelmässigkeit in der Entwicklung der Zähne.—Behandlung von Unregelmässigkeiten.—Vergiftung durch im Munde erzeugtes, von Amalgam-Füllungen herührenden ätzendes Quecksilber-Sublimat.—Jacob's Gutta Percha.—Gale's Löthrohr und Mundpropfen.—Feilen vermittelst Säure zu schärfen.—Behandlung vernickelter Gegenstände.—Fletcher's Mörser, um Trockene Amalgame für

die Anwendung im Munde geeignet zu machen.—Vermischtes.—Vorläufiges Programm für die am 2., 3. und 4. August, 1875 zu Freiburg i./B. abzuhaltende Versammlung.—Notizen für Correspondenten.

Le Progrès Dentaire. July, 1875.

Nerfs dentaires.—Conclusion de la première partie, par M. Stevens.—Discours prononcé par le Dr. Arthur Robert.—Causerie, par M. Stevens.—De la carie dentaire, par le Dr. Barkas, de Londres.—De la névralgie et de son traitement, analyse critique par le Dr. Stevens.—Usage du phosphate acide de fer dans la carie dentaire, lettre de F., dentiste à Bruxelles.—Traitement du bégaiement par la méthode Chervin.—Nitrite d'amyle.—Abcès péridentaire, observation par le Dr. A. Parker.—Hémorragie provenant d'une tumeur érectile de la gencive, observation par le Dr. G. Adams.—Condamnation d'un dentiste par une opération faite maladroitement.—Réclamation d'honoraires, procès gagné par un dentiste.—Amalgamea de palladium, analyse d'un mémoire sur ce sujet par M. G. Makins.—Avis, réponses aux correspondants, livres et journaux reçus

COMMUNICATIONS, &c., have been received from—

T. A. Rogers, Esq., London.—J. Dennant, Esq., Brighton.—W. J. Barkas, Esq., Newcastle-upon-Tyne.—J. Merson, Esq., London Dental Hospital.—Hilditch Harding, Esq., Acton, Stafford.—J. Fletcher, Esq., Warrington.—A. A.—Dr. McQuillen, Philadelphia.—Dr. Bogue, New York.—F. Mason, Esq., London.—David Hepburn, Esq., London.—Harry Rose, Esq., London.—A. Hockley, Esq., London.—S. Wormald, Esq., Stockport.—Dr. Meredith, Ohio.

The following Publications have been Received:—

The Dental Register.
Johnston's Dental Miscellany.
Le Progrès Dentaire.
Le Progrès Médicale.
The Dental Cosmos.
The Pennsylvania Journal of Dental Science.
The Missouri Dental Journal.
Deutsche Vierteljahrsschrift.
Correspondenz Blatt.
Boston Journal of Chemistry.
The Dental Advertiser.
The London Medical Record.
Our Teeth, and their Preservation. By L. P. Meredith, M.D., D.D.S.

TO CORRESPONDENTS.

ALL communications intended for the Editor should be addressed to the care of Messrs. SMITH, ELDER & Co., 15, Waterloo Place, Pall Mall.
All inquiries respecting Advertisements and Subscriptions should be sent to Mr. GEORGE BUTCHER, 4, Crane Court, Fleet Street, E.C.

DAVIS'S GOLD AMALGAM.

(REGISTERED.)

This Stopping takes its name from the fact that Gold pervades the whole mass, and therefore resists the action of the dilute mineral and vegetable acids. Having stood the test of time, and from testimonials received, it is without doubt the best introduced. A few of the many advantages are—it does not contract or expand, and retains its color, which is enamel-like when set; as it contains no platina or copper, the objectionable discolouration of the hand when mixing is avoided. This Amalgam possesses the great advantage of setting in about ten minutes, thus obviating the necessity of a second visit from a patient and risk of being disturbed by mastication as with other amalgams, the majority taking hours and even days to set. It withstands all the known tests.

Extract from the "British Journal of Dental Science," edited by C. J. Fox, Esq., L.D.S., M.R.C.S.E., Dental Surgeon to the Great Northern Hospital and the Dental Hospital, London :

"Judging by the tests we have seen applied, there does not seem to be either contraction or expansion in using it we have found it convenient in application, soon setting and not soiling the hands when mixing in the palm."

Extract from the "Monthly Review of Dental Surgery," edited by OAKLEY COLES, Esq., L.D.S.R.C.S.E., Dental Surgeon to the Hospital for Diseases of the Throat :

"This Amalgam possesses the merits claimed for it by the inventor. It sets so hard in ten minutes that it can be burnished thoroughly: the color is good and the texture is even, &c."

G. Brunton, Esq., Inventor of "The Contour Flask" &c., writes—

"It stands acids much better than any other Amalgam which I have used. I like it."

The following is from a well-known Dental practitioner :

"Dear Sir,—I have thoroughly tried your Gold Amalgam, and can testify to its many merits very heartily. It retains its colour in the mouth wonderfully, far surpassing all others I have used, and there is not the slightest appearance of any shrinkage."

"I am, dear Sir, yours truly, A. SMITH."

W. GEO. BEERS, Esq., L.D.S., R.C.S.E., Corresp. Memb. of the Odontological Society of Great Britain, at Montreal, CANADA, writes:—

"I am very much pleased with your Amalgam."

Dr. WILLIAMS, M.R.C.S., writes in reference to the Gold Amalgam:—

"I have tested with several acids, and find it resists all chemical change from the application in the ordinary dilute form. From its enamel-like appearance, and its being unaffected by acids much stronger than those secreted in connection with the mouth, it seems eminent fitted for a filling."

Extract from the "Transactions of the Odontological Society of New York," by the late Prof. THOMAS BARNES HITCHCOCK, M.D., D.M.D., BOSTON, see British Journal of Dental Science.

"A quick-setting amalgam, as a rule, is greatly to be preferred to those which harden less rapidly, because it is less likely to suffer from mechanical injury, by mastication and other causes, and is less likely to discolour from the smaller amount of mercury used. It can be polished sooner, and most important of all, it can be condensed about the edges, after it has been partially hardened."

G. WHITE, Esq., says—

"Your Gold Amalgam, inserted about eighteen months since, retains its colour perfectly."

Price 25s. per Ounce, in Ounce and Half-ounce Bottles.

To be had at the English, American, and Continental Depots, or from the Proprietor,

W. DAVIS,
15, ORCHARD STREET, PARK STREET, BRISTOL.

All Orders to be accompanied by Cheques or P. O. Orders.

THE MONTHLY REVIEW
OR
DENTAL SURGERY.

No. VI.

NOVEMBER, 1875.

VOL. IV.

Advertising.

DEFINITION—Dr. Johnson, “To advertise.”—“To inform another, to give intelligence.”

Richardson, “To call or direct the attention to.”

“The great skill in an advertiser is chiefly seen in the style which he makes use of. He is to mention ‘the universal esteem or general reputation’ of things that were never heard of.” *Tatler*, No. 224.

We have heard so much about the vulgar vice of advertising, that it seems desirable that we should know more precisely the full meaning of the term.

Advertising is a vice, when it is done in a vulgar fashion, but in the hands of a master it becomes a refined art. The object of all advertising is to make a certain person or thing thoroughly well known, and the man who “awoke one morning and found himself famous,” had simply hit upon a ready means of calling the world’s attention to his existence.

In every department of science, art, and literature the main spring of action is to acquire fame, and to acquire fame, in the majority of cases, may be taken as synonymous with becoming known.

The rising barrister who sees his speech, printed for the first time, in the public press, becomes at once assured that he is on the high road to fortune. The surgeon achieving such marked success in the public operating theatre, as to

obtain the notice of the medical journals, knows that he is taking legitimate means of attracting attention to himself. The dental surgeon who, by his hospital appointments, published works, and papers read before learned societies, brings himself prominently under the favourable notice of his confrères and the public, is simply adopting a recognised method of making his talents known, or using the word in its true sense—advertising.

Crossing the ill-defined line that separates legitimate professional enterprise from vulgar advertising, we must carefully bear in mind that the two conditions differ rather in form than in motive.

To advertise the price of a set of teeth is deemed essentially vulgar; to publish or advertise a book on a technical subject, brings down no such condemnation. The favourable critique of a successful work or operation calls forth only friendly congratulations, while the purchased praise of a penny-a-liner, though it may attract the attention of the public, meets simply with professional contempt.

Carefully analysing the motives of two men who adopt one or the other of the two courses we have indicated, we find the desire to become known is the aim and object of each alike.

The vulgar and unscrupulous man will adopt vulgar and unscrupulous means, while the man of education and refinement, will only act in accordance with the dictates of gentlemanly feeling, and professional usage.

Having thus endeavoured to show that all professional men in a certain sense advertise, we propose to publish, from time to time, a series of articles illustrating the various means by which the members of the Dental profession, bring themselves under the notice of the world at large.

Advertising. No 1.

WE have before us sundry papers anent this subject, upon which we have often ere now expressed strong opinions, and as they will, we think, admirably serve "to point a moral" if not "adorn a tale," we gladly seize upon them as a peg upon which to hang a few more words.

A large number of circulars, dated "New York City," Oct. 1st, 1875, were issued last month, inviting members of the profession, to attend meetings of "The American Academy of Dental Surgery" about to be held in that City. These invitations were signed in large capitals by "Geo. H. Perine, President" (at whose residence some of the meetings were to be held), and, in less prominent letters by three other gentlemen forming a "Committee" and the Secretary. We have thought it absolutely necessary to call particular attention to this, from the fact of the singular similarity in name to the well known "American Academy of Dental Science," and of the initials being precisely the same. Three of the gentlemen mentioned in the letters of invitation as about to deliver addresses, as well as the Mayor of New York, declined to appear, and we understand that very many of the "interesting letters" read from members of the profession as given on page 384 of last month's "Pennsylvania Journal of Dental Science," were communications, declining, on behalf of those gentlemen, to be connected with the Academy. The names of our leading professional brethren in this country were freely used to induce dentists to become "Fellows," one of whom consented, because he was "proud to be associated in membership with such men as Tomes, Cartwright, Fletcher, &c." We are distinctly authorised by Mr. Tomes to repudiate any connection with the affair.

It would appear that "Geo. H. Perine, President," is not only the President of this association, but in fact everything else. He reminds us of Mrs. Malaprop's definition of Cerberus, "three single gentlemen, rolled into one." It is at his hospitable mansion that the meetings are held, it is he who gives the "Fellows" attending, a "greeting," and it is he who proffers them not only "pabulum mentis" but also the more necessary "social refreshments."

Can it also have been he who with most commendable forethought secured the attendance of a German Quartette Club, as well as the rabbit provided for operation,

and which was, we presume, done to death with the dramatic and edifying accompaniment of "soft music!"

Can it be that this formidable meeting of twenty (including the German Quartette Club—but not the rabbit) was got up by its enthusiastic president to exhibit his "model establishment," a full account of which has appeared in an article entitled "Tooth Carpentry as a Fine Art—a Model Establishment," in the American journals. From this authority we learn that "Dr. George H. Perine has been for many years known as a dentist skilled beyond the ordinary," &c., &c., and that "his enthusiasm in the prosecution of his professional duties, has induced him to expend lavish means upon this establishment." We also learn that "Entering at the front you come upon a frescoed hall with tessellated pavement. A large reception room is made pleasant to the eye by the presence of numerous curiosities, including coins, medals, implements of war, and South American curios. " Then we come to "three operating rooms, each of which is furnished and upholstered in a different color, in blue, drab, and crimson brocatelle. Elegant and costly French walnut cases, velvet lined, contain instruments mounted in agate and mother-of-pearl. Fountains play in the cuspadores, and gold-fish swim about in the surrounding tanks."

Does not this read like an extract from the "Arabian Nights"? We can almost fancy a dusky attendant opening the front door—we apologise for using so homely a phrase, but no other mode of ingress is mentioned—and showing the happy, but suffering, patient in. We see him look with admiration at the "tessellated pavement," examine with interest the "South American curios," linger by the "fountains in the cuspadores, envy the innocent "gold fish" in their gambols—and finally settle down in a trance of delight at the blue brocatelle and agate-mounted instruments in the operating room. We only hope that, to be strictly in keeping, the doctor's hands are richly bejewelled. The final paragraph speaks for itself in a peculiarly touching and pathetic manner:—"Dr. Perine's professional charges are calculated to be within the ordinary economies of living."

We need say no more. Dental advertisers in this country are tolerably proficient in their art of pushing, though we have always understood that across the water their

brethren out-top them as much as does the "Matterhorn out-top Holborn Hill"—but assuredly as long as "Geo. H. Perine, President," lives, he must be *facile princeps*. Sheridan's Mr. Puff is at last outpuffed.

The Month.

ODONTOLOGICAL SOCIETY.

At the next meeting of the society, Mr. Ashley Barrett, M.B. will read a paper on *Periodontitis*.

At the last meeting, Mr. Kirby exhibited one of the most simple but perfect automatic mallets that we have ever seen. We trust that ere long the profession will be able to obtain them from the depots.

BOGUS DEGREES.

We would direct the attention of our readers to an important correspondence in another column between General Schenck and Mr. Hamilton Fish, that has appeared in the public press, relative to the Bogus Degrees being sold in this country by persons styling themselves representatives of American Universities.

HOSPITAL SUNDAY.

We observe that the grants to the Dental Hospitals of London from this fund are :

London Dental Hospital	£69	4	2
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National Dental Hospital	6	0	10
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rather out of proportion it would appear, but inasmuch as the latter institution got nothing at all last year it is a step in the right direction.

NATIONAL DENTAL HOSPITAL.

We hear that two entertainments are to be shortly given in aid of the funds of this Institution. A dramatic performance on the 29th inst. at Croydon, under the special patronage of—amongst others—all the county members of parliament, when the "Ticket of leave Man" is to be played. and a concert by the North West London Tonic Sol-Fa Choral Society at the "Athenaeum," Camden Road, on the 30th. We have no doubt they will be well supported.

MEDICAL SOCIETY OF LONDON.

An interesting case was brought forward at the first meeting of this

Society by Mr. Henry Smith. It was a very successful operation for cleft palate. The patient having gone the round of the room was recognised by Mr. Oakley Coles as one for whom he had formerly made an artificial palate, but which was only worn for a few weeks. Mr. Smith was warmly congratulated on his success by Mr. Bryant and Mr. Oakley Coles, the latter gentleman giving valuable testimony to the use of the operation, as he had considered the case, when brought to him some time before, quite unfit for surgical interference.

Sir James Paget's Address.

DELIVERED AT THE OPENING OF THE SESSION OF THE LONDON DENTAL HOSPITAL MEDICAL SCHOOL.

WHEN I was asked to take the chair at this meeting, and had taken time to consider my answer, it seemed to me that there were at least two good reasons for complying—one of them that my office at the Royal College of Surgeons made it my duty to do whatever was in my power for the promotion of the welfare of the London School of Dental Surgery, and the other that I was bound, by all the force of very old friendship and sincere esteem, to do whatever might be asked by my old pupil, the Dean of the School, Mr. Rogers. And having taken this place I suppose it to be my duty to assist, so far as I can, in the promotion of the day's design, which I take to be the conferring of honour upon the students of the Dental School who have gained prizes, and to make the occasion as useful as we can to them and to the other students of the School. In this design I apprehend I shall be approved by most, if not nearly all, of those present, for I presume that all are less or more interested in the students and the promotion of the art and science of the Dentist.

Let me first, then, gentlemen, congratulate you who have gained prizes to-day; and the grounds of congratulation are not few. You have gained pleasure for yourselves and pleasure for those whom you have made proud of you; and you have shown some of the first requisites for success in life—you have shown either mental or manual ability, or strength of will and purpose, or all these combined, above the rest of the students of your year. On all these grounds you are well to be congratulated, and I do not for a moment doubt that the institution of such examinations as you have passed, and the giving of prizes, although they are often ill spoken of, are in your case fully justified.

But I do not mean to speak about the prize-system now : for all of you can read the admirable address given here last year by Mr. Savory ; an address that should be read by all, for there is, perhaps, no one who knows more about prizes than does Mr. Savory. As I can tell, when he was my pupil he knew and went the way to win them. He was successful in every strife, and ever since, in his own brilliant career and in that of his pupils, he has had ample opportunity to study both the value of prizes and their utter worthlessness if they are supposed to signify anything more than that they who win them are the most likely to be fit for higher work.

I will speak, not only to those who have gained prizes, but to the whole class of students, of other examinations and other competitions yet to come ; not, indeed, of examinations for licence and diploma ; they are near, and I dare say you regard them as weighty enough ; but after them comes a much longer and severer examination still, in which you must compete with all your might, whether you will or not—I mean the life-long competitive examination of which the prizes are what are called success in life. For surely we all of us live in a constant competitive examination. If I may speak for myself, I am sure I have been in one for at least forty years, winning some good prizes, but not yet free from the consciousness that I may either spoil or lose all that I have gained, and that if I can still wish for anything more it can only be gained by constant work, and that such work as will bear comparison with the work of my contemporaries. It is upon such a competitive examination as this that you either now are or very soon will be entering ; and the prizes are the various forms and degrees of success in life. For which of these will you go in ? Well ; choose good form, and then let the degree be the highest which you can achieve.

But what are these various forms of success in life ? Well, first of them stands money. It is so useful ; so easy for reckoning ; the so many hundreds or thousands a year a man can earn, tell so exactly and, in one sense, so truly what is the measure of his success in life that it is almost inevitable that you should seek after it. A large practice with a large income will be the first thing by which you will be attracted ; and under certain conditions it may be a right thing to strive for, for a large income consequent upon

a large practice may indicate a large amount of good done very wisely and kindly to those who need it. But it is not so with those who regard money as the one and sole object of pursuit. For they are very rarely scrupulous in the way in which they get it; they are seldom liberal or fair to rivals; they very rarely are good colleagues such as the members of an honorable profession like yours and mine should be. For the ways to unfair money-making are so easy, and some of them look so fair, and at the end the power of wealth seems so immense, and it is so easy to persuade ourselves that what we get by evil means we may use for good purposes, that all, at some time or other are apt to fall under the temptation, not, indeed, of the lowest forms of money-getting, but of those that look most nearly fair. Against all these things I can only advise you all to be most scrupulously on your watch, and to meet every temptation with the argument of the highest, that is, the Christian, morality. Fraud and unfairness and untruth, in all their forms and degrees, these and the like of them are all God-forbidden things. You should need no other motive; but if you do, I would ask you to think how utterly contemptible it is to defraud a man who asks your help, and is not your equal in the knowledge of the things with which you are dealing. The great trouble of our profession is that the larger part of those from whom we have to earn money are very unfit judges of our fitness to earn it, and a large crowd of patients are more attracted by the noisy advertisements of ignorant men than by the good repute of those who work honestly with skill and science.

I am half ashamed to be speaking as if I thought any of you needed warning against unfair money-making; but a long experience has taught me that there are very few, if any, upon whom at some time the temptation does not fall; scarce any who do not need a warning, if not always, yet sometimes, or if not for themselves, yet for others whom they may influence. Let me therefore advise you all to look for some other forms of success in life, the pursuit of which may make the pursuit of money less unsafe.

And it is well for you that in your profession there are many ways to the better forms of success in life; such forms, I mean, as the happiness of mental exercise, the praise of the praiseworthy, the goodwill of good colleagues,

a high social position, and, above all, the consciousness of having done your duty—that is, of having done, not what you must, but what you can, for the welfare of those among whom you have to live. I could not but be struck, as the several prizemen were presented, with the wisdom that has prevailed in the Dental School, in making the chief subjects of your study those which do not necessarily cease with the acquirement of the amount of knowledge which you need for a diploma, and by which you may be tempted onward to better things in life than the mere pursuit of practice.

For the first, say, great manual skill. It is a real privilege to have an occupation that encourages for very useful ends the acquirement of the best possible use of the hand—that perfect piece of Divine mechanism. Some of this skill you must acquire; you can hardly get an honest living without it, and every year increases the delicacy and the difficulty of your operations; but you should try for much more than is just enough; for so much as may bring in its exercise the same sense of satisfaction as, I suppose, great artists have in brilliant execution; so much as only years of watchful practice can attain; so much as only the most skilled judges can appreciate. You may then in this particular have the happiness of doing your whole duty, and you may win a good prize in the competition of life and may even enjoy the competition.

I may say the same, I think, about the opportunities for mechanical inventions and adjustments which your profession brings you. I may safely assume that the apparatus for Dental surgery is not yet perfect, that your armoury is not yet complete. Here, then, is good work for you to do; here is another way to real and just success in life. For I imagine—having never enjoyed it I can only imagine—that there is intense pleasure in mechanical invention; that is, not only in the discovery of defects, a pleasure which all but the most stupid can enjoy, but in thinking, planning, making the means for mending the defects, and then in finding one's invention approved and generally adopted and counted among the means by which human suffering is lessened.

This pleasure may be yours; and, for a motive for looking out for all chances of improvement, let me remind you that the world owes to Dentists, who were on the watch

for anything that might improve their practice, the first use of the greatest blessing yet attained in medicine—the use of anaesthetics. I wish I could say that there had been an exercise of either intellect or scientific method nearly adequate to the great result that Morton and Wells reached or led to; but at least their instance may illustrate the value of that watchfulness in which we should all live, the looking out for all the possible chances of utility, the readiness to use whatever may do good.

But it may be said that mechanical invention and manual skill are useful in many callings in life besides ours, and in some are much more highly rewarded. Let me then speak of other things less common than these, in which, consistently with devotion to your necessary duties, and even helpfully to them, you may compete for the higher prizes of success in life.

I think you cannot too highly value the introduction which your profession gives you to some of the chief branches of scientific study, and through them to intense intellectual pleasure, and to excellent repute, and to the society of the most cultivated persons of your time.

You cannot practise your profession without seeing the necessity and the occasions of scientific study. In every study of every disease and every remedy there is room for science and need of it.

For example—merely for example—some of the materials you have to use, your *materia medica*, bring you to metallurgy. It has been already referred to by Sir Benjamin Brodie, whose name I cannot speak in this room without admiration; for he has enlarged a reputation which seemed almost unbounded, bringing the old name into a new glory, the glory of the great science of chemistry. Following him, let me remind you that in your practice you acquire a technical acquaintance with some singular properties of the metals which you use. You would gladly increase this acquaintance to intimate knowledge, for your technical acquaintance, your rule of thumb, is incomplete and very slow to advance. Here there is room for science and need of it. Very skilful chemistry may detect just what you want to know; and it is certain that wherever science works with art, explaining artists' facts and embodying them in its own laws, it gives to the art fresh power and precision, or it may be new materials and new

modes of work. I am not well read in literature of Dental Surgery, but I have read enough to know that you are not all satisfied with the amalgams you have to work with. Well, see whether careful scientific study cannot improve them; you may safely promise yourselves great pleasure in the study and reward adequate to your success; reward, it may be, in money, it is more likely to be in something better.

Still more in the proper objects of your study, in the teeth themselves, you must already have seen how they may be used for science and science for them. In zoology they are a basis for the classification of the most important groups, and, being of all organized structures most nearly indestructible, they have served more than any to teach the zoology of the older world. So, to have learned the structure of teeth and the means of studying it, it may be a good first step in natural history; or, if you would have your scientific studies nearer to your daily work, you know how you have to do with structures in which you may be certain that every improved means of inquiry, every increase in power of discernment, will find new truths, new beauties, for the sight and for the intellect. Studied in their life, and whether in health or in disease or decay, the knowledge of the teeth may be enlightened from the largest principles of biology, and may in exchange throw light on them.

I would dwell on this subject, and try to show you how great are your opportunities for biological study—how great pleasure you may gain, how much good you may do, in it, but that I know these things are set before you by your teachers. But they will have told you that what they can teach are but the beginnings of knowledge. They may have led you to the mouth of the mine and shown you some pieces of its richest ore, but far beyond and on every side there are pieces richer than any yet dug up. This is certain, though some of the best of miners have been at the work—Hunter and Owen, Bell and Tomes, and others of your still living teachers—whom you may find honour in following, even though you may not attain such results as some of theirs.

Let me then repeat. Here, in the study of sciences near to the very business of your profession—sciences which will take you, not out of business, but far onward in it—

you may win some of the best prizes in the competition of life, some of the highest success that you can reasonably wish for. In these sciences you may find endless intellectual pleasure; you may gain mental power with which to grapple with some of the greatest difficulties of your practice; you may gain the consciousness of doing right, and a claim to membership in the most select, because the most cultivated, societies of your time.

I will only mention one thing more. You should strive, as for a form of success in life, for the good repute of being honorable members of the associations which are most intimately connected with your own profession. There is not a little advantage in all associations of men of good minds, for they increase honesty and right effort by the mutual pledges they require and by the quickened sense of responsibility to which they give rise. But the most good is to be obtained by being members of societies whose names bring memories of men of renown for mental or moral power. Such a Society the Royal College of Surgeons is, and such an one the Odontological Society is becoming. You will do well if you will use membership in these societies, not merely as a signal that you are fit for the practice of Dental Surgery, but as a means for promoting in your own minds the resolve to be imitators of the good men that have gone before you, to pursue, as they did, the highest paths of the scientific inquiries that come within your range; to live as they lived, as brethren bound together, not for mere self and mutual defence, but for the maintenance of each other's honour, for the promotion of each other's interests in the highest pursuits of life. I speak the more earnestly on this because I have heard some say that you suffer as a profession because you are not incorporated, and have therefore no strongly marked *esprit de corps*. I cannot tell whether this be so or not, nor can I tell what would be the effect of a separate incorporation with especial legal rights. I cannot tell the chances of obtaining it or the advantages to come from it. I know that Acts of Parliament and charters do not exclude dishonesty from either medicine or surgery, and that they are not even capable of punishing dishonesty except in the most flagrant instances: and I know that all the best purposes of association can be obtained by the voluntary association of high-minded men, who resolve that the work

to which they give themselves for their profession's sake shall be done in the best possible way, with a constant tendency to advance higher and more high. Therefore, speaking only to students, and for the present or near future, I cannot doubt that I am right in urging them to strive to be very honorable members of all the societies with which they are or with which they may become connected, to hold fast to all the good associations of the Hospital and the School, of the College and the Society. Around these may be formed so compact a body of English Dental Surgeons, so distinguished before all by skill, by science, and by high moral character, that if they should ever wish for the further distinction of legal rights by special registration, this will not need to be asked for—it will be either given or claimed as a plain right.

Gentlemen students, I have tried to put before you some of those higher forms of success in life for which I would have you strive, and in which you may gain good repute and a just reward. Now, let me end. The motives I have set before you are not the highest by which you should be actuated: but they may consist with the highest; and as the highest may give strength and purity to these, so these may give even to the highest a useful purpose, a definite direction.

Microscopical Structure of Fossil Teeth.

FROM THE NORTHUMBERLAND TRUE COAL MEASURES.

By W. J. BARKAS, M.R.C.S.E., L.R.C.P. LONDON.

CHAPTER XVIII.

[*Continued from p. 201.*]

MEGALICHTHYS, (*continued*)

THE tissue of the jaws of this fish is truly osseous, the structure being more closely allied to the bone substance of reptiles than to the ordinary structure of fish bone; although this tissue, when examined under the microscope without first having the opportunity of observing the characters of the whole bone, would lead one to suppose that it was reptilian. *Megalichthys* is not the only fish whose bones present this appearance, there being many others

both fossil and recent, but the fossil examples shew it most markedly. A vertical section of the jaw, similar to that exhibited in Fig. LXXV., shews that the osseous substance is much more dense in the immediate neighbourhood of the teeth than in the more internal parts of the bone; this arises from a diminution in the size of the canals, causing a preponderance of tissue. In Fig. LXXV. the histological characters of the bone are very fairly pourtrayed considering the low power that was employed; it is composed of homogeneous tissue in which ramify numerous large canals, which branch and anastomose very freely in their course; surrounding the canals are series of concentric rings, which vary in number according to the age of the fish to which the bone pertained; these concentric layers appear to consist of a tissue similar to that of the bone proper, and arranged among them are many lacunæ, which are also arranged around the main canal in a concentric manner; from these lacunæ arise numerous canaliculæ, which proceed in a radiating manner from the lacunæ into the intermediate clear tissue, where they inosculate with the canaliculi from adjoining ring of lacunæ, they also anastomose with the canaliculi of their own lacunæ and of the neighboring lacunæ in their lamellæ; the most internal canaliculi empty themselves into the canal, and the most external unite with the canaliculi from a contiguous canal, or from the lacunæ of an interspace. These canals are those that we have, up to the present time, called "vascular canals," but now that they have surrounding their lacunæ, canaliculi and concentric rings, they are technically named Haversian canals, and the whole, Haversian systems, I shall, therefore, in the future always speak of Haversian canals when lacunæ, &c., are present, but it must be remembered these canals, whether designated Haversian or vascular, performed similar offices during life, viz., that of supplying nourishment to the bone tissue and of carrying away the *dèbris*. The lacunæ are spindle-shaped, but occasionally the form varies to an oval; they are not particularly large in proportion to the size of the fish, not being nearly so great in this respect as are the lacunæ in the osseous tissue of *Acrolepis*.

The conical teeth, both large and small, are composed principally of unvascular dentine, surrounded externally by a thin layer of enamel or ganoine. The dentine (Figs. LXXVI., LXXVII.) consists of an homogeneous matrix

densely permeated by calcigerous tubules which spring from the pulp cavity in the tooth proper, but those that ramify in the roots after they have become detached from each other, do not arise from any continuation of the pulp cavity into the root, but from the Haversian canals that run in their close proximity; that this is so is indisputable, because on the sides of the canals not in contact with the dentinal tissue are lacunæ with their canaliculi. In examining a section similar to that in Fig. LXXVI., it will be observed that the tubules that arise from the pulp cavity, pursue different courses on their way to the periphery in different portions of the tooth. Those tubules that ramify in the basal third of the body of the tooth, arise from the pulp cavity at right angles, and in the first third of their course they run perfectly straight and parallel to each other, not branching at all, apparently; during the middle third they branch dichotomously, but not very freely, the ramuli being given off at a very acute angle, and at a very short distance from their origin they become parallel with the parent stem; the tubules and their branches still pursue a parallel course, but they are minutely wavy, and have a tendency to curve upwards towards the apex; in the outer third the tubules bifurcate very freely, the branches being given off at an acute angle, but they do not become parallel with the main trunk, in fact, the whole parallel arrangement is lost at this part, the main tubules and their ramuli interlacing with each other, but never to so great an extent as to render them indefinite; the branches, apparently, do not inoculate with each other, but pursue their course right up to the periphery of the dentine, dividing and sub-dividing as they proceed. In the first two-thirds of this final portion, or perhaps rather more, the general direction of the tubes is still with a curve towards the apex, and the bend is much more marked than the curve in the middle third that I have described; when the curve has reached thus near to the periphery it suddenly bends again, and the tubules proceed at right angles to the external surface of the dentine. The tubules and their branches in this outer third are very heavy; each tubule in the basal third of the tooth thus runs perfectly straight for some distance, and then curves twice, the first primary curve being concave towards the apex, and the second towards the base. As we proceed from this basal portion

of the tooth, towards the apex the tubes do not arise at right angles to the pulp cavity, but the angle becomes more and more acute, the tendency of their course being always towards the apex; at the apex the tubules arise again at right angles to the cavity. With this change in the direction of the tubules their characters also alter. Their general tendency, I have said, is upwards, but after proceeding a short distance from the pulp cavity they commence to curve very slightly, but visibly, towards the base, they, however, never bend so much as to lose their upward tendency; when the tubules are near the periphery, they again curve upwards, so that these tubes also present two curves, but exactly the reverse of those in the basal third, the first concavity being towards the base, and the second towards the apex. Besides these changes the tubes are much more wavy, and they commence to divide into branches almost directly after leaving the pulp cavity; the tubules and branches retain their parallel tendency, but it is not so distinct as in the basal portion. The tubules that arise from the apical extremity of the pulp cavity present different characters from either of the two kinds of tubules I have detailed: they arise at right angles, and proceed for some distance parallel with each other, and apparently without branching, but as they pass upwards they gradually diverge, forming a slight bend with the convexity towards the apex, the central tubes presenting the least curve. When this divergence occurs, the tubules begin to branch, the ramuli being given off at very acute angles, and they gradually diverge from the parent tubes; these tubules have lost their wavy course almost entirely, being quite uniform and regular.

The appearance presented by these diverging tubules is exactly similar to what would be observed if we took a bundle of rushes and tied them tightly at one end and allowed the other extremity to expand. The diameter of these tubules varies from one-fifteen thousandth to one-thirty thousandth of an inch at their origin according to the size of the tooth; the branches near the periphery measure from one-thirty thousandth of an inch to extreme minuteness. The interspace between two tubules, is, according to Professor Owen, about double the diameter of a single tubule; undoubtedly such is very frequently the case, but in my sections the width of the interspace is not constant.

When comparatively thick vertical sections are examined, many of the tubules will be observed to terminate in a layer of cells near the external surface of the dentine, but these cells are generally rubbed away in very thin sections, and only those fine branches that pass beyond that boundary are observed in the peripheral portion. This stratum of radiating calcigerous cells is most clearly seen in the convoluted dentine of the base when divided transversely, and it is generally situated about one-four hundredth of an inch from the periphery; the cells are comparatively large and give off numerous projections to which the calcigerous tubules are connected. As the method of the termination of the tubules in a layer of calcigerous cells in the teeth of *Megalichthys* is similar to that in the teeth of *Rhizodus*, I shall defer pourtraying it until I speak of that fish. A transverse section near the apex, but below the termination of the pulp cavity, exhibits beautiful alternate rings of light and dark brown spaces under a power of 80 diameters. Fig. LXXVII is an illustration of a portion of such a section. These concentric lines were a source of difficulty to me for some time, I could not ascertain the cause of the alteration. In a comparatively thick section, as transverse sections of these teeth generally must be, on account of their excessive brittleness, the rings appears to be layers of radiating cells with much granular matter within and around them, into and through which the tubules pass; directly the tubules have passed one of these concentric layers, the general colour of the section becomes light brown, and than gradually turns darker and darker until the next stratum is reached, the cause of this appeared to be that many of the tubules terminated in this granular layer, and the light space beyond was more transparent on account of the diminution of the number of the tubules, while the gradual darkening was due to the frequent division and sub-division of the tubes as they pursued their way towards the external surface. But this is not altogether the case although it is so to a great extent, as is proved by some very thin sections I have succeeded in cutting; in these preparations the cells and granules of the layers have been rubbed away, still the dark and light shades remain but to a fainter degree, and I find that they are caused by those tubules that do not terminate in the cells dilating somewhat in the dark rings, and at the same

time receiving an abrupt twist upon themselves, after which they proceed on their way to the next layer where they undergo the same process; these sudden curves and dilatations occurring all on one plane, are probably the cause of the alterations of shade, for they will possess different powers of refraction from those parts where the tubules run straight and parallel, beside they will retain most of the carbonaceous matter that must necessarily enter into the tubules during the process of fossilization.

The enamel is a thin layer covering the external surface of the exserted part of the tooth, (Fig. LXXVI) it extends downwards and coats those portions of the convolutions of the base, that are uncovered by bone dipping deeply into the grooves. This tissue is exceedingly clear and transparent, and entering into it are a few of the terminal dentinal tubules. In almost all the sections that show the enamel numerous opaque black points are seen in the tissue scattered about in a very irregular manner, they have very varied shapes and differ much in size; these spots were noticed by Agassiz, and he thought they might either be calcigerous cells, or merely portions of carbonaceous matter introduced into the tissue during the process of mineralization, but he inclined more towards the latter opinion. From an examination of the spots that I have made under very high powers, I have not the slightest doubt concerning their nature, they are small masses of carbonaceous matter introduced by infiltration. The tubercles situated on the buccal surfaces of the palato-vomerine bones, and on the inner aspect of the mandible are composed solely of dentine in which ramify numerous calcigerous tubules similar to those in the dentine of the conical teeth. The tubes present two curves in their course from the pulp cavity to the periphery, the first having the concavity towards the base and the second towards the apex. On account of the dome-shape of the pulp cavity, the tubules always rise at right angles.

German and French Notes.

INTERRUPTED DEVELOPMENT OF A TOOTH GERM.

A SHORT time ago, a very remarkable case came under my observation, which, I think, may interest my colleagues. In a boy, of eleven years of age, appeared the crown of a bicuspid over the second temporary molar (the first also being present) the temporary tooth, which was to be extracted, was not decayed.

In a superficial examination, it at once struck me that in the neighbourhood of the new crown there appeared to be pus, and by examination, I convinced myself that the new crown was decayed. In sounding I struck directly against the fang under the crown. Under these circumstances, which allowed of no doubt that the tooth germ must have died during its development, there remained nothing for it but removal of the new crown which was accomplished by a slight movement of the probe. The temporary tooth was of course left in its place. The perfectly formed crown of the bicuspid brought to light, had its characteristic form, quite the appearance of a normal temporary tooth thrust out by resorption, with a deep furrow of erosion, and the caruncles usually presented by the remains of a tooth germ. Traumatic causes were not mentioned by the patient, but frequently recurring abscesses. Were then these abscesses, the immediate cause of the death of the tooth germ, or, were they the consequence, that is to say, were they caused by the presence of a strange body, the dead tooth? We shall probably not be far wrong when we say both. The consecutive abscesses principally led to the elimination of the tooth.—*Vierteljahresschrift*.

J. METZER.—UPON ATMOSPHERIC PRESSURE AS A MECHANICAL MEANS OF FIXING THE LOWER JAW AGAINST THE UPPER JAW IN A STATE OF REPOSE.

DONDERS.—UPON THE MECHANISM OF SUCTION. POSTSCRIPT TO THE FORMER ARTICLE. *Pflüger's Arch.* x. 89-94.

WHILST the mouth can be kept closed for hours without subjective annoyance, a most unpleasant feeling of tension of the muscles and fatigue occurs if we try to breathe for five minutes with the lips and teeth only slightly open.

Further, it may easily be observed that if with the mouth closed we endeavour to separate the lower jaw from the upper jaw, the mucous membrane of the cheek on both sides is pressed against the teeth, and a flow of saliva is felt in the mouth. This hermetical closure of the walls, which, in certain cases may form a Cavum oris; the way of respiration being along the tongue occurs in such a way, that the point of the tongue is placed forwards and upwards. In the upper row of teeth and in the cavity of the alveolar process and hard palate, and the base of the tongue fits into the corresponding part of the lower jaw and the back teeth. The lower surface of the tongue rests upon the edge of the lower jaw, and both are alone supported by atmospheric pressure.

Donders proves experimentally the existence of a suction chamber formed between the tongue and the hard and soft palate and teeth, in which, generally by the introduction of a Manometer attached to a denture by a plate, a negative pressure of 2 m.m Hg occurs. The latter may however, easily rise to 100 m.m Hg, when the tongue is first placed flat and then drawn backwards in an arch, that is to say "Sucks." A second suction chamber may be formed between the lower surface of the tongue, the floor of the oral cavity, and the lips, when the tongue is moved backwards with closed lips. If then the teeth are slightly parted, then the lips will be somewhat bent inwards through this space.

From this it follows that with closed mouth the tongue through certain muscular movements, is more or less drawn against the palate, and that even as the lips are fastened together by adhesion, the floor of the mouth cavity may be connected with the whole lower jaw by adhesion. In this way the lower jaw may be supported.—*Centralblatt*.

ABNORMAL DENTITION.

IN dental literature there is no want of communications on the subject of abnormal tooth formation and position. The tardy appearance of permanent teeth has been frequently mentioned, especially when the observations have been of an interesting character. A short time ago our colleague Detzner of Speyer, mentioned a case* where a gentleman, 28 years of age, on ac-

* Deutsche Vierteljahrsschrift, 1875, Heft. 1. Jahrgang F. V. S. 14.

count of periostitis of the four remaining upper temporary incisors wished these teeth extracted ; this was done in April, 1874. At the end of June the gentleman had a plate, at the begining of September the plate was broken by the eruption of a large right incisor. In this case, there is no doubt that the eruption of the pemanent teeth was retarded in consequence of the long retention of the temporary teeth.* In opposition to this, I can mention a case where the too early removal of the temporary teeth, was the cause of the permanent incisors not appearing for fifteen years.

Fraulein V. B., belongs to a strong healthy family, and does not arouse in us the least suspicion that any tooth forming substance should be wanting. Notwithstanding this supposition she has still wanting (she is 24 years old) the permanent lower incisors. Being an intelligent person she positively declared that since her 8th year she had never had a tooth drawn, but that before her 6th year, she had had her lower temporary teeth extracted by a practical doctor as they were black, in order that the new ones might come through better.(?)†

She has lived for the last few years in Hamburg with an aunt who has always wished her vainly to have the defect in her mouth remedied by artificial teeth. She is now entitled to the pleasant hope that the ugly space may be filled up by her own natural teeth. Nevertheless these late comers appear so slowly and so irregularly (ziz-zag between tongue and lips) that they do not give the lady much pleasure. The abnormality in this case is almost deformity and gives to the otherwise interesting face, an old, unpleasant expression.

Yesterday I had with me a robust peasant aged 23 years, with normal formation of the jaw, wishing to have the lower left canine removed on account of painfulness. On looking into the mouth it was observed that both canines of the upper jaw were represented by firm temporary teeth.

Any way the cause of pain in the lower jaw, was a temporary tooth somewhat loose, which was easily extracted, the fang being half absorbed.

* Perhaps from the abnormal position of the tooth germ.

† This was probably only an idea of the people.

On the same day I removed from a lady, aged 20 years, the entirely healthy crown with partially absorbed fangs of two temporary canines, as the crown of the neighbouring bicuspid appeared inside.

Further, a lady aged 24, with pretty, small, and entirely healthy teeth, and normal jaw, suddenly discovered on the palatine side of the gum, between the lateral incisor and canine, a new tooth which made her uneasy.

Finally, the following as a matter of curiosity: Fraulein A., in June 1872, 18 years old, had a normal palate, 4 incisors, 4 canines, 2 small back teeth, and 4 molars regularly placed in the upper jaw. The right canine tooth next the permanent lateral incisor, was a loose temporary tooth which was easily removed with small forceps. On the 5th of April 1875, we found in the same upper jaw 4 incisors, 3 canines, 3 small back teeth, and 4 molars. Whilst the two left canines had remained quietly in their place, in the place where three years before the temporary canines had been, a bicuspid had comfortably stretched itself out by winding round upon its long axis, and thus came into contact with its two strange neighbours. We see here then the perfectly formed canine between two small molars, and now wait to see whether the same play of nature will take place on the left side of this young lady's jaw.—*Vierteljahresschrift.*

REPETITION OF EPLUS; MYXO-SARCOMA OF THE UPPER MAXILLARY;
RESECTION OF THE UPPER MAXILLARY; CURE.

ESTELLE, aged 33 years, came under the care of M. Guérin about the 14th of March, 1875, on account of a tumour of the left upper maxillary. This female had, ten years previously, undergone an operation for an eplusis of the size of a nut. This tumour was situated on the same side between two teeth, at the level of the two small molars. The operation was sufficiently inclusive. The surgeon extracted several teeth, and resected the alveolar edge of the maxillary.

About two years after the operation the patient noticed the appearance of a new tumour, which gradually developed itself without causing any pain.

Actual state of health.—No cachexia, no alteration of the ganglion. In the left cheek there existed a tumour the

size of an orange, which raised the teguments but did not adhere; the skin of the cheek had preserved its normal colouring, and its mobility in the thicker parts.

The upper maxillary seemed entirely altered. The whole body of bone was augmented in volume, and had lost its normal consistency. On depressing the bony walls an elastic resistance was felt, and here and there parchment crepitation. The body of the maxillary and its prolongations (palatine apophysis and ascending apophysis) were concerned, but the alteration seemed limited to the jaw; it seemed to be brusquely arrested at the limits of the bones, and to have had respect to the sutures.

M. Guérin diagnosed a sarcoma of the upper jaw; M. Nicaise, who took his place, made the same diagnosis, and practised resection on the 1st of April.

The patient was not anæsthesised. The surgeon employed Nelaton's method (first incision on the median line of the lip, surrounding the curve of the nose, ascending to the great angle of the eye; second incision perpendicular to the first, and parallel to the orbital border), the tumour was easily enucleated, and the operator cauterized with the red hot iron some points which appeared irritated.

The consequences of this operation were very simple:— the patient had no fever, the wound united by first intention, except at one point (the angle of the eye) where a small fistula occurred.

The extirpated tumour was about the size of a small orange; it consisted of a fleshy mass contained in an extremely fine bony shell. In a section of the tumour might be seen this fleshy mass divided by fine bony joists, which were detached from the peripheral shell and were divided into a great quantity of cells.

M. Ranvier who examined it when fresh, considered the fine osseous lamellæ to be the débris of old bone; the sarcomatous part of the new formation found between these lamellæ to be constituted by the elements of a fasciculated sarcoma. Certain points of the tumour had undergone myxomatous degeneracy.—*Le Progrès Médical.*

Notes from the Journals.

PROLAPSUS LINGUE.

MR. FAIRLIE CLARKE related the further history of the case of prolapsus lingue which he had exhibited three years ago. The child had been seen occasionally since the operation; he had grown an active, intelligent boy. The tongue was still thick, but could be kept in the mouth, although the stump habitually presented behind the teeth. Speech was thick and indistinct to all but his friends. The teeth were regular, and approached mutually to within a quarter of an inch. The case was unique in this country of the operation at such an early age.

Mr. Wagstaffe inquired into the nature of the portion removed by operation, and respecting the intelligence of the child. He had seen a case where the tongue was very large, and there certainly was defect of intellect.

Mr. Clarke replied that one inch and a quarter of the tongue had been removed by the écraseur. The microscopical characters had been described in the *Transactions*. There was no intellectual defect.—*Pathological Society, Medical Times and Gazette.*

ALTERNATION, A LAW OF VITAL ACTION.

BY L. C. INGERSOLL, of Keokuk, Iowa.

This leads me, in closing this essay, to allude to the grooved and pitted condition of the enamel not unfrequently seen in healthy mouths.

I know of no other account having been given of this condition of the teeth than that it is caused by a suspension of vital action in the enamel organ during the period of tooth development, prior to the emergence of the teeth from the gum, and induced by some constitutional disease, like measles or small-pox. In the view of the subject as here presented, it is perfectly evident that there *might occur a suspension of vital action* in the enamel organ, caused by the presence of such diseases as have been named, and others of like distinctive character. But it is not, by any means, evident to my mind that this grooved and defective condition is the result of such suspension of vital action. If the teaching of this essay be true, alternative activity and suspension of activity are the *law* of vital economy. This suspension does not, therefore, result in defect of tissue, but the functional work is resumed where it was left off, and carried on precisely as though it had not been suspended at all. This is according to nature, animate and inanimate, in all her developments.

There are reasons which, to my mind, militate against the aetiological account of this form of defective structure as commonly given in the text books of dentistry. We find that in the development of very many, and probably of all, the tissues of the body, there are repeated suspensions of vital action, and yet the tissues become complete and perfect. It seems very strange, if true, that suspended vital action should be so peculiarly marked on the teeth, and not elsewhere in the bony structure, and strange indeed that it should not appear in the roots of teeth as well as in the crown—roots that were in the dentifying process at the same time. There has never come under my notice a single case where like effects were

seen on the roots of teeth. Furthermore, in my experience in operating on such teeth, I have failed to find corresponding grooves in the underlying dentine. It appears, therefore, to be confined wholly to the enamel.

When I have been inquired of by patients and by the parents of children as to the cause of the grooved and pitted condition of their teeth, and I have named some of the constitutional diseases common to infants as the probable cause, I have very often been met by the remark that their children never had any of the diseases named, and had never been seriously ill. Of course my theorizing went to the ground in the face of such statements, and I was nonplussed. In offering a new explanation of that condition of the teeth now under consideration, I dare not be dogmatical or very confident until, by carefully conducted observation, I am enabled to place my theory upon the more substantial basis of fact.

Premising thus, I am prepared to state my conclusions from only very limited observations, viz.: that the horizontal grooving and pitting in the enamel of the teeth is not the result of suspended vital action during the development process while in the sacular stage, but is accomplished, after the teeth have cut the gum, by a solvent, and that each alternate groove and ridge, mark successive stages of their emergence under the law of alternate vital action.

It is well known that a very acrid fluid is poured forth from the margins of the gum when the mucus membrane is diseased, and that this very acrid secretion of the mucus follicles has physical characteristics which retain it in contact with the fresh crowns of the emerging teeth for a very considerable length of time, despite the washing with the more fluid saliva. We have seen in the earlier consideration of this subject, that the teeth do not make a uniform and steady growth and emergence from the gum, but that a growth of one, two, or three months, is followed by a cessation of growth for a similar period of time. During this period, when the teeth cease to grow, should they be constantly bathed along the line of contact with the margin of the gum with the acrid fluid above mentioned, there must inevitably occur such a solution of the enamel as to form a furrow or groove. During the succeeding months of outward growth from the gum, the solvent is not long enough in contact with the enamel to produce results as in the preceding months, and the enamel not wasted away is left in the form of a ridge. This process going on during the whole, or any considerable portion, of the period of the emergence of the teeth, would produce a series of alternate ridges and grooves, and in a less dense structure of the enamel, lines of indentations or irregular depressions.—*The Missouri Dental Journal.*

THE TREATMENT OF NEURALGIA BY GELSEMINUM SEMPERVIRENS.

“GELSEMINUM SEMPERVIRENS,” or yellow jasmine, a native of the southern portion of the United States, has long had a considerable reputation in America in cases of neuralgia, but it has as yet attracted little attention in Europe. It has, however, in this country been recommended by Dr. Wickham Legg and Dr. J. Sawyer as a valuable remedy for neuralgic toothache. This drug has recently been tried in the Dispensary at Heidelberg, which is under the direction of Prof. von Dusch, by Dr. A. Jurasz, assistant-physician; and he has reported, in the *Centralblatt* for July 10, the favourable results which followed its use in several cases.

He gave the gelseminum in the form in which it appears to be most prescribed in America, namely, in that of the tincture ; the dose being from five to twenty minims three times a day.

With five minims given in this way for three days, a man of thirty, who had been suffering for a week with neuralgia of the right supraorbital nerve, which had resisted quinine and veratrum ointment, was completely cured. The same dose given for six days gave permanent relief to a woman who had had brachial neuralgia on the left side for more than a year and a half, and been treated with various other remedies without success. Two other neuralgias of the fifth nerve were rapidly cured with five and ten-minim doses ; and a case of very severe sciatica on the right side in a man of sixty, which had completely disabled him and confined him to bed, was quickly relieved by eight-minim doses three times a-day, and the patient was able in a fortnight to walk with a stick ; the cure being completed by warm baths and the use of the constant current. On the other hand, the gelseminum failed completely in two cases of muscular rheumatism, and in a case of long-standing hemicrania.

In no instance was any unpleasant effect observed, either on the circulatory or digestive organs ; but the dose of twenty minima was never exceeded.—*Medical Times and Gazette.*

EXCISION OF HALF THE TONGUE FOR EPITHELIOMA.

BY PROFESSOR SPENCE, Edinburgh.

THE growth commenced on the right side of the tongue about the beginning of April, 1873. Before the patient, James A., set 47, consulted Prof. Spence, it had reached considerable size, but as it had a smooth surface, and was exceedingly like a condylomatous growth, constitutional remedies were tried. At the same time some stumps which seemed to be irritating it were removed. The tumour, instead of diminishing in size under the use of the remedies employed, gradually extended into the substance of the tongue ; it also assumed more characteristically the appearance of epithelioma, and was the seat of considerable pain.

On admission into the Royal Infirmary on the 15th of April, 1874, there was a hard, lobulated mass on the right side of the tongue, extending from about one inch from the tip backwards to within a quarter of an inch from the base. In front it reached to about a quarter of an inch from the middle line of the tongue, but further back it approached close to the raphæ. Its surface had a rough, uneven appearance, but at no part was there any ulceration. There was no enlargement of the cervical glands, and the patient's general health was good.

On the 20th of April Prof. Spence removed the diseased half of the tongue by dividing the jaw at the symphysis. The tongue was drawn forward by means of two pieces of stout cord, introduced one on each side of the middle line. The tongue was divided between these strings, and the diseased part removed close to its attachment to the hyoid bone. After the bleeding vessels had been secured, a hole was drilled through the entire thickness of the jaw on each side, close to the division made by the saw, and, by means of a stout silver wire introduced through these holes and twisted, the portions of the jaw were kept firmly fixed in accurate opposition. The soft parts were then stitched up, and a drainage-tube introduced through the floor of the mouth at the posterior end of the

wound, so as to permit of free discharge, and to allow the mouth being more thoroughly washed out. A gum-elastic feeding tube was passed by the nostril and allowed to remain.

On May 6th, as the discharge had almost stopped, the tongue being nearly healed, the drainage-tube, which was causing some irritation, was removed. The patient still paid great attention to the washing out of his mouth. The general health was good.

On the 28th, as the jaw was pretty firm, the man was dismissed to the Convalescent Hospital.

He returned in a fortnight, and as the jaw was firmly united, the silver wire was removed.

Prof. Spence saw the patient again in the month of January, and there was no return of the disease.—*Lance.*

Odontological Society of Great Britain.

ORDINARY MONTHLY MEETING, Nov. 1st, 1875.

The President, J. TOMES, Esq., F.R.S., in the Chair.

THE minutes of last meeting having been read and confirmed,

Mr. C. S. TOMES specified several donations that had been made to the Library Museum.

Mr. KIRBY read a paper on "mallets." He said that it occurred to him, some years ago, that air might be used as a source or conveyer of the motive power required for mallets. He had invented an instrument (which he exhibited). It consisted of a light metal tube, provided at one end with a socket for holding the point, and containing a loose piston or plunger, which is moved rapidly forward by a puff of air, obtained from a small bellows connected with India rubber tubing, and worked by the foot. In addition to the straight instrument which, like all others, could only transmit force in a straight line, he had contrived one in which the point stood at an angle to the shaft, by which the direction of the blow was changed, as when a cannon was made, and by its help a stopping could be consolidated towards the anterior or exterior walls of distal cavities. The blow given by it was much lighter and more steady than that which was given by the heavy mallet, and a very small movement with the foot was sufficient to produce the blows which could be varied at pleasure with the amount of force used.

The PRESIDENT said that the mallet was by far the best that had ever come under his observation.

AMALGAMS.

Mr. KIRBY then read a paper on the above subject. After experimenting for two or three years, with a view to determine what contraction took place in amalgams, he arrived at the conclusion that however desirable it was to avoid the former tendency, another property, that of changing its shape after hardening, had far more to do with the failures incident to their use. The correct explanation of this tendency was without doubt the one given in the new edition of Mr. Tomes' manual—that the excess of mercury which is usually squeezed on to the surface in packing, is after a time absorbed into the dryer part at the bottom of the cavity, which then expands, whilst the surface portion which parted with it, contracts in consequence, giving rise to the cupped shape so often noticed. It appeared at first sight a little remarkable that the specimens of stopping in large short tubes or cups which we have so frequently seen and heard of lately, could easily be made water-proof, but from a little consideration of the way in which these test stoppings were made, it was quite evident that the mercury was not only squeezed out from the stopping at the bottom of the tubes, but also from that round the sides of the orifice, which part would necessarily expand when it again absorbed the surplus mercury from the centre, so that the contraction was confined to the part of the cup where its effect was not seen. It had been suggested by Mr. Sewill that a stopping would adhere to the sides of a dry tube or tooth in the same manner as it would to the sides of a rough mortar, but although this was the case with a small bit of amalgam, the same would not occur with a larger piece which touched, and might adhere to both sides of the tube, for the force which held it to the sides would be far less than that which held it together in a mass, so that if contraction took place, the stopping would leave the side rather than itself break into two parts. Silver and palladium amalgams expanded so greatly that the defect due to change of shape was entirely counterbalanced. Amalgams introduced in the roughest manner often preserved teeth for a long time, which was no doubt due to the mercury not having been displaced by careful packing, so that there was no change of shape from this cause. Then there were amalgams which had been packed in the dryest condition, so that no mercury could be squeezed on to the surface, but which

were not so suitable for the class of cavities in which amalgam was used as a softer paste, although if dry enough, they might be made to keep their shape. Lastly, there were those in which the first portion of mercury was used rather soft, and the last very much dryer, so that it absorbed the surplus squeezed out of the first part. These were easy to use, and, being free from any change, were, he believed, the most useful in practice. He had been able in this way to make stoppings which, instead of forming a cup shaped surface after setting, became convex, thus shewing expansion at the orifice instead of contraction. His practice was to mix equal weights of filings and mercury, then divide the mass in half, and add to one part, half the original weight of filing. The other mass was then used to line the cavity, and the dry for the surface. The amalgam used by him contained silver and tin in nearly chemical proportions. The formula had been published in the Society's transactions, and also in the "Dental Journal." The presence of gold was necessary to produce a rapidly setting effect, and to prevent discolouring. His main object was to call attention to the fact that stoppings in nearly their combining proportions seemed to act more satisfactorily than those in which they were in mixed relation.

MR. VASEY asked if, in packing the amalgams, Mr. Kirby considered the fluid portion on the surface was only the mercury, or if it was the fluid portion of the stopping altogether, or only the tin and mercury.

MR. KIRBY said he had not separated the portion that came to the surface because he thought it was of little consequence, whether it was the tin itself in the mercury, or the whole amalgam dissolved in the mercury that came up.

MR. C. S. TOME thought that the failing of amalgams seemed to depend upon two factors—the change of form and the change of bulk, and it would be well to get an amalgam which did neither the one nor the other. He thought that the packing of amalgams into tubes, as adopted by Mr. Fletcher, should be abandoned. Perfect fillings could never be made unless some plan were found to prevent their changing form, and Mr. Kirby, seemed to be on the road to find such a method by so adjusting the different parts of the filling, as to compensate for the change of form that would otherwise occur.

MR. SEWILL said that although the Dental Profession

were agreed that it was very rarely justifiable to use other materials for filling teeth than gold, still, in hospital practice other materials were used for certain reasons. Gold being unattainable by the poorer classes, those who worked at amalgams in a scientific spirit, were doing some of the best work for the profession. He thought that Sullivan's cement which he had used in hospital practice was very little less durable as a filling than gold. In using amalgams, great care must however be exercised.

MR. C. J. FOX then described a new dental chair which Mr. Ash had sent for inspection.

MR. HUTCHINSON read a paper on the "Dental Nerve Pulp," in Life and Death. After a few words by way of preface, he said he would premise that fully nine tenths of their surgical practice, apart from mechanical work, involved some treatment either directly or indirectly of the dental pulp. *Indirectly*, even in simple cases of stopping, where the nerve so called was not exposed, the dentine through its influence was allowed to be more or less sensitive. *Directly*, the treatment of the nerve, its exposure and its death, as the result of alveolar abscess gave more anxiety and trouble to patient and operator than any other branch of the dental calling, save and except the treatment of cleft palate. He then dealt with the subject under the following heads of :

1. Sensitive dentine.
2. Nerve near and tender.
3. Nerve exposed in excavation.
4. Nerve exposed by disease.
5. Inflamed nerve.
6. Suppuration and Sphacelus.
7. Alveolar abscess, acute and chronic.

He did not think that sensitive dentine, except in certain situations, deserved the importance frequently attached to it by writers on the subject, and he held that there was very seldom need to resort to remedial means for its relief, except by two methods. One was, after preparing the cavity until healthy bone was reached, instead of continuing the torture, stop the cavity with an osteo-plastic material, enjoining the patient to return in three months. In other cases where the cavity was on the buccal surface or near the neck, a certain means of relief of the exquisite tenderness was to apply arsenic and carbolic acid

to the cavity on blotting paper, sealing it with wax; it was of the last importance not to use it for more than thirty-six hours, and, as far as his experience went, he deprecated as much as possible the use of arsenic. The removal of horny masses of disorganized dentine in large cavities was often agonising, and might be made easier for the moment by applying pure carbolic acid, though a sharp excavator would do the work effectually without. In troublesome cases it was better to delay gold-stopping, preferring to use gutta-percha, and spreading a small piece of lead over the situation of the nerve. After giving a hint as to the method of inserting gutta-percha in cavities, he went on to consider the question of the exposure of the pulp, and mentioned a mode of treatment made known to him by the late Mr. Sercombe, whose intention it was to have brought the matter before the Society. Mr. Sercombe's plan was to cut a small piece of pattern lead the size of the floor of the cavity, and on it to place some morphia, moistening it with creosote; he always mixed them on the lead, but he (the speaker) kept the paste ready made. Mr. Sercombe used the lead flat, but he (Mr. Hutchinson) burnished it into a saucer shape, very shallow in the middle, then with rubberdam in place, applied the lead with the paste over the exposed nerve, then with osteo, mixed soft, he proceeded to fill the cavity, the pressure of the instrument communicated through the stopping serving to send the lead home all over the floor of the cavity. The object of having the lead saucer shaped, was to allow of the force being spent on the lead and not on the nerve. After the stopping was in it might be varnished either with melted lead, wax, or solution of gum. It was wise to request to see the stopping in from three to six months, because it might want renewing, or the tooth might bear a harder filling. Still he had seen cases treated in that manner quite satisfactorily after eighteen months or two years. This class of cases, he admitted, could easily be treated successfully in various other ways, but not so painlessly, and was invaluable in cases of irritated pulp. The osteo he preferred, as giving least pain, was that prepared by Gutensohn, which he had used for a year satisfactorily, the free acid in the chloride being neutralized with magnesia. This plan of capping exposed nerves was capable of modification, whereby a tooth could be stopped

permanently at one sitting, provided the pulp was healthy. This could be done with the lead and morphia, but instead of filling up the cavity with osteo, it should only be placed in a mass sufficient to cover the lead all over, adhering to the walls of the cavity all round, leaving, however, sufficient space and holding ground for a metallic filling. This would be a suitable case for amalgam, preferably palladium, which could be inserted so gently as not to press on the delicate pulp through its projecting layer of osteo, but gold would to a certainty set up mischief. He confessed the difficulty of dealing with the question of exposed pulp after inflammatory pain, and asked for a full expression of opinion of the members present on the subject; no hard and fast line could be laid down, except to condemn as much as possible the use of arsenic as an escharotic. At the first visit, if not too painful, some of the decay should be removed and one of the usual dressings applied, such as aconite and chloroform, carbolate of collodion, or the paste of creosote and morphia, for some days, until all pain had gone, painting the gums with aconite and iodine; finally, removing all decay, he would proceed to fill in exactly the same way as before with lead, creosote and morphia, with osteo over these. About 80 per cent. of cases so treated had been successful, and those not so, usually ended peacefully, the nerve in many cases dying without pain, or only gradually, and when the stopping was removed, no sensitiveness remained, and the tooth was ready to be treated. He had not referred to Mr. Oakley Coles' ingenious method of using pepsine, but he hoped to hear his further experience, and he also wished to hear some remarks as to lactophosphate of lime, as his experience did not permit of his entering fully into the subject. He then detailed his mode of treatment in cases where the exposed surface of the pulp was suppurating, and where the pulp was completely dead. These modes of treatment were different from those often adopted and resulted in increased comfort to the patient.

Mr. HENRY said that for the last three years he had abstained totally from the use of arsenious acid, or indeed, any escharotic in destroying vital dental pulp. In his treatment of the nerve he simply restored quiet to the tooth and used a bibulous layer saturated with carbolic acid, which adapted itself to the slightest inequality, and if on its being applied to the carefully prepared cavity a

layer of osteo-plastic was applied gently without irritating the open nerve, a metallic plug could be used directly the osteo-plastic had set. He should like to hear of other members excluding the use of escharotics from their practice, although he should not entirely abolish their use in the treatment of vital dental nerves.

Mr. COLEMAN advocated the use of escharotics. In almost all cases of exposed pulps when it appeared in an inflamed, irritable, congested, and purulent condition, he found that after lessening the sensitiveness of its surface by carbolic acid the next best application was strong nitric acid, capping over this, and, in almost all cases, filling up at once. In cases when the pulp was more or less dead, and there was a troublesome discharge from the fangs, he found that arsenic employed as an antiseptic got rid of the discharge.

Mr. UNDERWOOD thought that many of the evil results following the use of arsenic were from its abuse. There were some cases where it was a valuable agent, but it should be used with the utmost caution.

Mr. HENRY said that since its introduction he had tried salicylic acid in place of carbolic acid, and had so far found it a perfect success.

Mr. C. S. TOMES mentioned a case where Dr. Taft of Cincinnati had touched the exposed nerves with strong nitric acid previous to filling two teeth with gold, and without putting any protective layer whatever between the gold and the pulp, and he considered that the eschar formed by the nitric acid was in itself a sufficient cap. Dr. Taft also made it a practice to touch with nitric acid nerves that had been exposed by decay, believing that the inflammation in such nerves was local. In such a case, the nitric acid would destroy the inflamed spot that makes its appearance, and the nerve would have a fresh start.

Mr. VANDERPANT said he had occasionally applied the actual cautery when he found the nerve exposed, and also the electric cautery to the exposed surface with marked success in several instances, not stopping the tooth, however, the same day, but applying some temporary filling until next day, when the tooth was stuffed with gold or amalgam filling.

MR. OAKLEY COLES said, his experience had convinced him of the efficacy of pepsine paste, the use of which he confined almost entirely to cases of suppurating pulp, and ex-

ceedingly offensive discharge. Arsenious acid, all would agree, was one of the most perfect destructive agents that could be obtained. He had found that in capping pulps exposed by accident, it answered well to touch them with carbolic acid, and put over that a stopping, immediately in contact with the nerve, of osteo-plastic, but that did not answer so well where any inflammation was remaining, as the pain recurred after a short time and the stopping had to be removed. He always regarded it as a confession of ignorance on the part of the profession that they should have so frequently to destroy the pulp. It was simply an admission that they did not know how properly to restore it to a healthy condition. It would be as reasonable for a surgeon, in amputating the thigh at the lower third, to clear out the medullary canal, as for a dental surgeon, in treating a carious cavity, to remove the vital dental pulp.

MR. VANDERPANT said, when Mr. Henry eschewed escharotics, he forgot that carbolic acid was a very powerful escharotic, because like all of the escharotics, it produced an eschar.

MR. HENRY said, he only eschewed escharotics as a means of destroying the dental pulp. The failures in his modes of treatment were so remarkably few that he could not name a per centage of success.

MR. THOMAS ROGERS after expressing the deep interest he had always taken in the subject said, he had found when the pulp was exposed after the use of escharotics the chance of success in the operation of capping the pulp was very much diminished, owing to the suppuration of the pulp under the cup, which necessitated the removal of the nerve to prevent the loss of the tooth. He had rarely found the attempt to preserve the pulp succeed where once any great inflammation of the pulp had been set up. He recommended the use of arsenic in devitalising the pulp previous to an operation, but thought it should be used with very great caution. The pulp should always be excised at a point where it was still living, the great body of the pulp being destroyed by arsenious acid. Those cases were most satisfactory in which there was still a certain amount of vitality left in the nerve.

Mr. KIRBY agreed with the latter remark of Mr. Rogers, and said that in his own practice he had found that where there was any considerable amount of inflammation in the

nerve the operation had never been thoroughly satisfactory, or free from after irritation. In applying arsenic, great care should be taken that it was thoroughly in contact with the pulp.

Mr. SEWILL, in the course of his observations on the subject, said that unless he heard the *rationale* more thoroughly explained he should not apply cautery or nitric acid in the treatment of the exposed healthy pulp, as such a mode was quite at variance to the structure of the pulp. He used arsenic exclusively in cases where it was necessary to destroy the pulp, and it very rarely happened that pain followed after its application, but he had taken care to see that the arsenic was in actual contact with the pulp.

Mr. VASEY said he should like the author to explain the physical changes he had observed, by the various modes of treatment either in the diseased or exposed pulp.

Mr. STOCKEN said his remarks quite confirmed those of Mr. Henry with reference to the treatment of exposed pulps. He had very rarely been unable to succeed in the treatment of diseased or exposed pulp by the use of carbolic acid, which he looked upon as not only an escharotic, but an antiseptic. He thought the greatest caution should be exercised in the use of nitric acid which seemed to him to be most difficult of application.

Mr. MOON said he had had one bad result from the use of arsenic, but that was when the arsenic escaped outside the tooth and came in contact with the mucous membrane, and he could not call to mind a case in which the application of arsenious acid had led to any bad results.

Mr. HUTCHINSON having briefly replied to the various speakers.

The PRESIDENT, in the name of the Society, thanked the authors of the different papers. There were two extreme cases he thought which should be borne in mind, that of pivoting when the pulp was destroyed, and a piece of gold wire put in its place, and the stump conducted itself peacefully for a number of years; and the other and less frequent case in which the pulp was fully exposed and covered with coagulem, when the gum heals over and the pulp at some future time is converted into osteo-dentine. There were several such cases in the museum, no doubt others would be discovered and placed on record.

The Meeting then adjourned.

The Dental Hospital of London, Leicester Square.

CASES TREATED AT THE DENTAL HOSPITAL OF LONDON DURING THE MONTH OF AUGUST.

CASE 1 was that of a little girl *æt. 7*, who was sent here from one of the hospitals to have her teeth examined. She had been previously treated a long time for epileptic fits with but little improvement. On examination, her mouth appeared full of decayed deciduous teeth and necrosed stumps.

It was a delicate looking patient exceedingly nervous and timid. I suggested the removal of two at each visit, rather than remove a lot at one sitting, fearing the excitement might produce a fit. Up to the present she has had several of the worst removed with very marked improvement of her general health. The recurrence of the fits is less frequent.

I ordered *Mist. Potassii Bromidi bis die.*

Case 2 was that of a man, *æt. 35*, who applied for a special operation, namely, the extraction of some teeth under the nitrous oxide gas. It was administered by Mr. Lane, who after consuming (*I should say*) twenty gallons of gas, succeeded in getting him partially off. I quickly extracted a lower molar, when he immediately recovered consciousness. As he had other decayed teeth he seemed anxious to get rid of. Mr. Lane advised him to return the following Thursday. This he did, when after having his beard and moustache soaped, the face piece was adjusted. He inhaled gallon after gallon, to the extent of at least thirty, but singularly to say, with no effect; being then as conscious as when he commenced. I entered the room at the finish, so witnessed nothing of it, still this fact was verified by other gentlemen present. The gas was good, as proved by the following patients, who consumed the remainder of the bottle.

Case 3 was that of a child suffering severely from ulcerative stomatitis.

I gave her *Mist. Potasse chloratis*, as well as a mouth wash composed of the same. This she continued for a fortnight, which, coupled with due attention to her bowels and general diet, resulted in a cure.

Case 4 was that of a young women *æt. 19*, who had suffered with neuralgia for a lengthened period, she having tried a variety of remedies with but little avail. On examining her teeth, nothing appeared particularly amiss with them. On diagnosing the case, I concluded that it was more constitutional than local. I prescribed some pills, made of quinine, henbane, and valerianate of zinc, twice a day, with a liniment of aconite, to be applied every night at bedtime. After a fair trial, this had a most satisfactory effect in mitigating the paroxysms.

Case 5 was an awkward one. I had of a patient who had applied elsewhere for the removal of a lower wisdom, when, instead of removing it, the operator had turned it horizontally against the base of the coronoid process. Finding it immovable, he dismissed him saying, he could not get it out, and that he had better go to the Dental Hospital. This, as one could imagine was anything but an easy job, as the trismus was so great that his mouth could scarcely be opened half an inch. By the aid of a prop I succeeded in passing the elevator down, and slipping it out, much to his gratification.

Case 6 was that of hemorrhage after the extraction of an upper molar

which readily yielded to the usual treatment of plugging with cotton wool previously dipped into a potent styptic.

JAMES MERSON,
Dental House Surgeon.

THE DENTAL HOSPITAL OF LONDON.

CASES TREATED FROM OCTOBER 1ST TO OCTOBER 31ST, 1875.

Extractions.	Children under 14	...	...	...	347
	Adults	...	...	...	601
Under Nitrous Oxide	...	...	...	...	214
Gold Stoppings	...	...	...	...	230
White Foil ditto	...	...	...	...	29
Plastic ditto	...	...	...	...	248
Irregularities of the Teeth treated surgically and me- chanically	...	...	...	...	23
Miscellaneous Cases	...	...	...	...	284
Advice Cases	...	...	...	...	109
					<hr/>
	Total	...	...	...	2085
					<hr/>

JAMES MERSON, *Dental House Surgeon.*

Correspondence.

We do not hold ourselves responsible for the views expressed by our Correspondents.

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

60, Liverpool road, Islington, N., Oct. 18, 1875.

SIR,—On reading your leading article, for this month's *Review*, upon the recent meeting at Manchester, I perfectly concur in your remarks, "that reform must, to a great extent, begin from the centre of the circle," therefore express my surprise that the Odontological Society have not taken up this important step long ago. I recollect my kind and esteemed friend, Mr. C. J. Fox, reading a paper on the subject before the Society some years ago, and excellent as the propositions were, in my humble opinion, they have remained in abeyance up to this time.

Your obedient Servant,

A. P. REBOUL, D.L.R.C.S.,

Member of Odontological Society and Pharmaceutical Society, Dental Surgeon, German Hospital and Tottenham Training Hospital.

Compulsory Registration of Dentists.

TO THE EDITOR OF THE "BRITISH MEDICAL JOURNAL."

SIR.—I shall esteem it a favour if you will permit me to state that I fully sympathise with Mr. S. Hamilton Cartwright's views, as expressed in his letter to you of the 30th ult. It is pretty generally known that I endeavoured, some years ago, to bring about the wholesome reform which he advocates; but I was forced to retire, because I found that I should have to fight the battle almost single-handed.

I regret that I am at present unable to take up in detail the various matters of which Mr. Cartwright's letter treats as, with your permission, I may possibly do at some future time; but it may be serviceable to the cause he advocates, to mention in the meantime that I have for some years past conducted my own practice upon the system which he would be glad to see extended, and have deputed to skilled mechanicians all work that may be defined as actually mechanical; and these execute my orders out of the house, and bring the results for my supervision and adjustment precisely in the same way that surgical instrument-makers carry out the instructions of an operating surgeon.

I remain, sir, faithfully yours,

WILLIAM DONALD NAPIER.

22, George Street, Hanover Square, Nov. 3rd, 1875

TO THE EDITOR OF THE "BRITISH MEDICAL JOURNAL."

SIR.—Will you kindly permit me to make a few remarks concerning a recent provincial meeting which was convened with the object of obtaining aid from Parliament to secure the compulsory registration of dentists?

I most thoroughly agree with the intelligent criticism upon this subject which recently appeared in your JOURNAL.

The conclave was composed, with few exceptions, of unqualified members of the profession; and, although it is satisfactory to find that all ranks are being aroused to the necessity of improving the status of their calling, I fear that the result of this meeting may not be that speedy success which its promoters anticipate. Moreover, it is to be regretted that the means employed to enlist the sympathies of those taking the highest rank in the profession are not by any means the best calculated to attain that end, inasmuch as I have just received a paper giving a notice of the above mentioned meeting, in which is enclosed a thin tablet of cork of cunning workmanship, on which is imprinted an advertisement recommending certain

"plastic fillings" to be obtained of one who took a prominent part in this movement for the promotion of dental reform. Now, although this can only be looked upon in the light of a trade circular, still it is certainly a paradox to see it enclosed with a scheme for "Dental reform."

The only true reform must consist in higher and more perfect education ; and there need be no fear lest dental surgery should not take its legitimate position immediately a majority of those who practise the speciality become fully qualified practitioners. You still insist upon the necessity of separating the mechanical from the more purely surgical part of dental practice, and, at the risk of giving offence to some less liberal members of the profession, I frankly confess that I think that such a consummation is devoutly to be wished; for I am convinced that it is this connection which has brought much that is undesirable into our ranks, though I cannot see that the union of the two branches converts a profession into a business more than the retailing of drugs by the general practitioner who compounds his own prescription.

The manufacture of mechanical substitutes for the natural denture I would gladly relegate to a body of skilled mechanicians, who should hold a similar position to that of the ordinary manufacturer of surgical appliances ; the instruments being made and adjusted subject to the supervision of the surgeon, who, especially in dental practice, ought to have a competent knowledge of mechanics, as a mere mechanist might fail in that æsthetic, artistic, and anatomical perception which is necessary in cases of deformity like those alluded to here.

But this division will not achieve all that which is to be desired ; for those who are ambitious of the highest professional and social position must enter their profession through a portal, the entrance to which should imply a liberal education, both general and special ; and this is to be found in the diploma of Member of the Royal College of Surgeons, to which it is to be regretted that the special degree in dental surgery was not primarily appended. One of our most distinguished and celebrated surgeons lately said, whilst speaking authoritatively in the name of the Royal College of Surgeons, that that body would be only too glad to receive the best men of that specialty into its fold ; and I likewise believe that those men would infinitely pre-

fer that connection to any other. Speaking for myself, and I believe for some others, I desire no other position than that which I have as a qualified surgeon. I trust that ere long every general hospital will have a special department for instruction in dental diseases, as for those of the eye, throat, or ear; for I am certain that the attempt to separate the profession of dental surgery from that of general surgery would be a great mistake. Had the diploma of Licentiate of Dental Surgery been only conferred as a pendant to that of M.R.C.S., the coveted means of registration would have been thereby obtained at once. Still, although it is to be feared that a special registration would have a tendency towards the separation of the general and special branches, yet, on the principle of choosing the least of two evils, I believe that, if that registration could be made to depend upon the possession of the Diploma of L.D.S., so that none should practise without this *minimum* degree, the profession would be purged of much that is unclean and unhealthy in its ranks; above all, of that advertising class which makes a sensitive man occasionally blush for the name of his profession. To such a project I would give support, though I should esteem it a matter of regret if this should lead to such a separation as that to which I have referred. In America, such a mistake has been made, and we find that the children are now seeking a connection which the parent justly disclaims, save on the condition that they educate themselves as fully qualified practitioners. Let us take warning from that example, and determine to ally ourselves with those from whom to be divided would be a loss of honour in a professional as well as in a social point of view.

Finally, if specialists are ambitious of the status granted to their medical *confrères*, they have only to educate themselves as they are educated. Let them take a larger and more liberal view of their calling, banishing all petty jealousies and intestine bickerings. Let them advance schemes for the common weal, apart from mere personal interest and the gratification of individual ambition, and there would then be no difficulty about special registration whilst men who now hold aloof from special politics, and the general body of those practising the specialty they have adopted, would join the van of those who love the

good name and support the fair fame of their profession in word and action.—Believe me, sir, yours faithfully,

S. HAMILTON CARTWRIGHT,

Professor of Dental Surgery at King's College, and Lecturer at the London School of Dental Surgery.

London, October 25th, 1875.

MR. EDITOR,—As Editors are supposed to know almost everything, I come to you for information as to the status of the American Academy of Dental Surgery of New York, George H. Perine, President.

Is this an off-shoot from the old and highly respectable society of Boston, known as the American Academy of Dental Science; or is it in humble imitation of that society, with only the last word *Science* changed to *Surgery*, thus retaining the initial letters, A.D.S.?

The name is so slightly changed that it is well calculated to deceive the unwary. I already know of several in Europe who have been inveigled into giving or promising to give this *new academy* their support, who, had they been in America would have had better opportunity to inform themselves as to the professional status of the so-called American Academy of Dental Surgery, whose President permits, or has permitted, to be published in a New York newspaper, such a puff as would do credit to a barber's shop.

To read the article alluded to, and to associate with it the President of the American Academy of Dental Surgery is sufficient to condemn the organization, and to forbid any respectable practitioner becoming a member, either corresponding or active.

Any information which you may be able to give, will be most thankfully received by

AMERICANS AND OTHERS
Who fear that they have been misled.

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

SIR,—Although fifty years constitutes a serious span in the lifetime of an individual, it marks but a short period in the history of a nation. Civilization may be advanced—social reforms established—fashion (that mighty ruler of the million) may change our tastes and habits, making that

which was an object of pride to-day, a subject for derision to-morrow, still the world goes on the same, and will do to the end of time.

As in the life of an individual, so in the progress of those arts and sciences that contribute to our advancement, thus the last half century has seen great changes in the profession to which this Journal is devoted.

Those who can look back fifty years will remember, among other things, how little we knew of each other in those days, how strictly we guarded our modes of practice, and how sincerely each man believed he knew more of his profession than his neighbour. The very materials employed in mechanical dentistry were limited to a few well-known substances, and when anyone declared that he was able to introduce an improvement, he was generally met by an incredulous stare, and a disparaging shake of the head. We had no periodical literature, no means of communicating one with another. This was not the age of cheap postage. The carriage of a single sheet of paper from London to Liverpool cost eleven pence. If this state of things existed in the metropolis—and they had their dental dépôts even then—how were those practitioners positioned who lived in the provinces? They had usually to depend upon their own resources, or send to London for what they required. Those who resided in the larger towns, it is true, might know a few of their neighbours, and with their assistance be aided in many minor matters, but to all intents and purposes the science of dentistry was a hidden mystery, and its more delicate operations known to but few.

To the publication of the first journal devoted to the interests of the profession, we owe the sudden change that immediately came over all our proceedings. A better feeling sprang up among those in practice. Improvements of all kinds, both surgical and mechanical, were freely discussed, modes of practice specially criticised, and a spirit of emulation appeared to animate all the profession. From that day every thing that connects itself with a thorough knowledge of our art, has steadily advanced. Our hospitals have largely contributed to our store of facts, and perfected the rising generation in those many operations that go to make a thorough dental surgeon. We are no longer ashamed to acknowledge our profession. We are received and can associate with other members of the scientific world. One ugly spot alone remains to tarnish the lustre we have gained by so much toil and cost—the same spot that fifty years ago disgraced our calling, and that year after year continues to fester among us. If we take up the earliest Dental Magazine published, we find continued lamentations that so large an amount of empiricism should disgrace the profession. Some excuse was made because the art was young, and the public knew so little about its professors. Now nearly forty years have past, and yet we can hardly read a journal without encountering the same lamentations in very nearly the same words. With all our advancement—with all our boasted spread of technical education, surrounded by institutions founded for the propagation of scientific research, and governed by men actuated by the purest and most elevated ideas of professional etiquette, we have the same disgraceful exhibition of charlatanism on every side, and that empiricism made profitable, because with all our advancements, the outer world remains in total ignorance of what should constitute a respectable dental practice, and continues to believe “in the pretender, with the loudest voice and the fewest scruples.” The question

asked on all sides is—How is this to be corrected? and the only answer any reasonable man can return is, that those practices being prejudicial to the public interest, the sooner the public is taught to estimate them at their value the better, and they will not be slow to profit by the lessons. Prove that an advertising dentist is generally as dishonourable as he is ignorant, and his vaunted cheapness a delusion. Educate the public to know all this, and to regard mere assertion as no longer a proof of ability. The writing of any number of articles in the Dental or the Medical Journals can do but little, as they are principally read by members of the profession. We should try and call in other aid, and why should not fiction be made a vehicle for exposing these practices? This is not the first attempt to try and put down abuse by calling in the ridicule of the novelist. If "Vernon Galbray" is a true exposition of the life of a humbug, its publication is an experiment that others might follow with advantage, and its free circulation become something more than an attempt to tame rattlesnakes with bath buns. The rattlesnakes are being tamed by this means. They object to the truth being spoken, and it has been said that the book reads as if the author prefers to speak the truth. This we can say, he has neither fame nor profit to gain by its publication. The volume is without a name, and the price leaves no margin of profit—but somehow the public seem to like it, and have asked for a second edition. The profession are not insensible to the use that may be made of exposures of this kind; the author has received nearly one hundred letters, many of very great interest. Thus encouraged, he means to persevere, and try and get up a crusade against quackery. It may sound quixotic, but we must not judge by beginnings. This first attempt may be but a weakly thing, yet with each succeeding edition the author hopes to be able to add to its strength. Let it run side by side with the quack pamphlets presented to the public by hundreds of thousands. It is only a work of fiction, but "it excites remark and enquiry." The public may commence its perusal for amusement, never mind if they end by searching for instruction.

Yours ever,

THE AUTHOR OF "VERNON GALBRAY."

Dental Reform.

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

18 & 15, Suez Street, Warrington.

DEAR SIR,—Allow me to state in reply to several letters, that the circular with the above heading recently sent out with one of my own, was printed and issued by me on my sole responsibility, and that it did not emanate from any committee.

A proposal was made at the meeting in Manchester to print and forward a complete report of the proceedings to all members of the profession in the United Kingdom; towards the expense of this I offered to contribute ten pounds, in addition to my subscription already promised. As the total amount subscribed for this special purpose was not sufficient, I

on my own responsibility, printed the circular sent, enclosing one of my own to show that it had no official origin.

If the subscription list is any guide, the circular has been of decided service to the cause.—Faithfully yours,

THOS. FLETCHER.

Warrington, October 22nd, 1875.

FROM THOMAS FLETCHER.

DEAR SIR,—I am desired to state that the Circular on Dental Reform, enclosing one of my own, was printed and sent by me, and that Mr. Fox is in no way responsible for the issue. The amount offered at the Meeting, including £10 offered by myself for this purpose, was not sufficient to defray the cost of printing and posting a full official report to all the members of the profession; and failing my own Circular, no notice of the Meeting would have reached any except subscribers to the Dental Journals.

False Degrees.

TO THE EDITOR OF THE DAILY NEWS.

Sir,—I desire to call attention of the British public to a systematic fraud which it is proper should be thus exposed, and, if possible, the perpetrators of it punished. Ascertaining that persons have been engaged in this country in selling degrees or diplomas purporting to be conferred by certain American Colleges and Universities, and being satisfied that these distinctions and honours were pretended and spurious, I have made the imposture a subject of correspondence with my Government. Inquiry has been especially made in relation to "The Philadelphia University of Medicine and Surgery" and "The Livingston University of America"—institutions so called—of which there are professed agencies in London and elsewhere. I append copies of letters of the Governors of Pennsylvania and New Jersey, the States in which these Universities are respectively described as being situated, and have to request that you will publish them with this note.—I am, very respectfully, your obedient servant,

ROBT. C. SCHENCK.

Legation of the United States, London, Nov. 3rd.

HON. HAMILTON FISH, SECRETARY OF STATE.

Sir,—In answer to your communication of October 9th instant, I have to say that there is no Act of incorporation in this State of a "Livingston University of America" at Haddoecfield, nor is there any such institution at that place, nor anywhere else in New Jersey.—Yours, very respectfully,

J. D. BEDLE.

State of New Jersey, Executive Department,
Trenton, Oct. 12th, 1875.

HON. HAMILTON FISH, SECRETARY OF STATE, WASHINGTON, D.C.

Sir,—I have the honour to acknowledge your communication of October 1st, making inquiry in reference to an alleged institution with the title "The Philadelphia University of Medicine and Surgery."

There is no institution known as such. The charter of an institution by the corporate name of the "Philadelphia University or American College of Medicine" was revoked by the Legislature of this State in 1872 for the issue and sale of diplomas to persons not qualified to receive the same.—Respectfully yours,

J. F. HARTRANFT.

Executive Chamber, Harrisburgh, Pennsylvania,
October 12, 1875.

ERRATA.

Mr. Francis Mason's article, "The Surgery of the Mouth," published in *The Monthly Review of Dental Surgery*, for October, 1875.

P. 217, line 16 *from top*, for paragraph commencing "The incision," &c., read "The incision, when made, allows the escape of the inflammatory effusion, and therefore relieves tension."

P. 217, line 16 *from bottom*, for "waste" read "matter."

P. 217, line 12 *from bottom*, for "acid" read "acida."

P. 217, line 6 *from bottom*, for "chlorate" read "cerate."

P. 218, line 3 *from top*, for "Sentien" read "Seutin."

P. 218, line 5 *from top*, for "Welpech" read "Delpech."

P. 219, line 16 *from top*, for "M. Notta" read "M. Notta."*

P. 219, line 9 *from bottom*, for "Willroth" read "Billroth."

P. 220, line 6 *from top*, for "acid" read "acids."

P. 220, line 7 *from top*, for "carefully" read "successfully."

P. 220, line 21 *from top*, for "chlorate" read "chlorata."

P. 220, line 23 *from top*, for "aqua" read "aqua."

P. 220, line 15 *from bottom*, for last part of paragraph read "not the least of which is an unseightly adhesion, which occasions a 'tucking in' of the skin."

P. 220, line 13 *from bottom*, for "teutomy" read "tenotomy."

P. 220, line 8 *from bottom*, for "Roger" read "Royes."

P. 220, line 8 *from bottom*, for "Archio" read "Archiv."

P. 221, line 9 *from top*, for "the upper jaw" read "the jaw."

P. 221, line 20 *from top*, for "alveolar process and nasal process" read "alveolar and nasal processes."

P. 221, line 22 *from top*, for "but" read "and."

P. 221, line 7 *from bottom*, for "preventitives" read "preventives."

P. 221, line 2 *from bottom*, for "Med. Chi. Jo. fo. 1844" read "Med. Chi. Tr. 1844."

New Inventions.

STEWART'S REFLECTOR.

WE have much pleasure in again calling the attention of the profession to the excellent gas reflector invented by Mr. Stewart, F.R.C.S. After using it for nearly a year we are fully convinced of its great usefulness, and would advise every practitioner to have one. It is by far the best appliance for working by artificial light that we have ever seen.

MAW'S INDIA RUBBER TOOTH BRUSHES.

WE have received from Messrs. Maw, Son, & Thompson, some excellent specimens of their India Rubber Tooth Brushes. Where the teeth are very sensitive they may be used with much greater comfort than the ordinary bristle tooth brush, and for keeping the edentulous gums in a healthy condition they are most valuable. We believe their use for the latter purpose would tend, in very many cases, to remove the congested condition of the mucous membrane so often seen.

Mr. Hancock has resigned his seat at the Dental Board of Examiners of the Royal College of Surgeons. His successor will be appointed on the 11th instant.

COMMUNICATIONS, &c., have been received from—

W. J. Barkas, Esq., of Newcastle-on-Tyne.—Francis Mason, Esq., London.—Gurnell E. Hammond, Esq., London.—A. P. Stewart, Esq., London.—T. Fletcher, Esq., Warrington.—James Merson, Esq., London.—An American—The Author of "Vernon Galbray."—Our New York Correspondent.—Dr. McQuillan, &c. &c.

The following Publications have been Received:—

- The Dental Register.
- Johnston's Dental Miscellany.
- Le Progrès Dentaire.
- Le Progrès Médicale.
- The Dental Cosmos.
- The Pennsylvania Journal of Dental Science.
- The Missouri Dental Journal.
- Deutsche Vierteljahrsschrift.
- Correspondenz Blatt.
- Boston Journal of Chemistry.
- The Dental Advertiser.
- The London Medical Record.

TO CORRESPONDENTS.

ALL communications intended for the Editor should be addressed to the care of Messrs. SMITH, ELDER & Co., 15, Waterloo Place, Pall Mall.

All inquiries respecting Advertisements and Subscriptions should be sent to Mr. GEORGE BUTCHER, 4, Crane Court, Fleet Street, E.C.

THE MONTHLY REVIEW
OR
DENTAL SURGERY.

No. VII.

DECEMBER, 1875.

VOL. IV.

The Examination in Arts.

WE have on several previous occasions urged upon our readers, the necessity for the Examination in Arts, being made compulsory for all dental students. We have good reason for believing similar views, are held by many of the leading members of the profession. Since, however, the mere suggestion of a reform, is not sufficient to bring about the end in view, we desire now to adopt a definite course of action, so that, if possible, the matter may be brought to a practical issue. With this object before us, we propose that a committee should at once be formed, consisting mainly of gentlemen interested in dental education, who might draw up a petition and obtain signatures from all qualified dental practitioners, praying the Council of the College of Surgeons that, after the lapse of five years from next October, no student should be admitted to examination for the Dental Diploma unless he could produce a certificate of having previously passed an Examination in Arts.

A petition of the nature we have indicated would, we believe, be signed by all those gentlemen who have obtained the Dental Diploma during the last fifteen years; since its object would be not only to restrict intelligently the numbers entering our ranks, but further, to demand a higher educational standard, and so secure on the soundest basis, the social position of the next generation of dentists.

A request so reasonable as the one we have suggested would scarcely meet with a long continued opposition from the Council of the College, whilst the time we have fixed as a limit for the existing state of things, enables every dental student now pursuing his studies to fulfil the curriculum as at present in force. To future students the new regulation would be neither harsh nor unjust, since they would have ample opportunity afforded them, in order to prepare for the necessary Examination in Arts.

The measure of reform we now put forward would injure no existing interests, would benefit all those who really desire the advancement of their profession, and, by increasing the difficulty of obtaining the Dental Diploma in future, proportionately increase its value to those now holding it. That some opposition will be raised to this scheme we fully expect. But that those who consider education—in its broadest sense—the best means of raising the position of dental surgery, will give their support to the measure we quite as confidently predict.

Advertising. No. 2.

LAST month, writing under the above general heading, we commented upon some rather singular documents that had reached us from across the water. This month we propose to look at home, and to call attention to what we may call the *practical* method of advertising before the public adopted by several professors of the dental art. These gentlemen, apparently, take unto themselves as a guiding principle the words addressed by Hamlet to the players:—

“Come, give us a taste of your quality.”

and endeavour to draw attention “and obtain support” by exhibiting specimens of what they are pleased to call their skill, in cases placed in the most prominent windows or outside the front doors of their houses. This style of advertising is practised to no inconsiderable extent by the trading classes, and its highest and lowest points may be represented respectively by Sir John Bennett, the ex-sheriff, with his figure of old Father Time striking the hours upon the top of his shop in Cheapside, and the poor artist, who “chalks “tastes of his quality” upon the pavement, whilst another example is the writing-master, and “specimen of my handwriting before and after taking six lessons from Mr. Buggins.”

This kind of advertising flourishes greatly in the chief thoroughfares leading to and from the metropolis, and the curious in such matters may count some seven or eight examples in a ten minutes’ walk northwards from Finsbury-square. They consist of all sorts, from the modest case containing merely the two jaws of well-developed teeth, to the window full of plates, red plates, yellow plates, white plates, plates with one tooth, plates with two teeth, plates with any number of teeth, with springs and supports, with boxes of tooth-powder, and with bottles of gum (can it be that the gentleman who exhibits these last intends a grim pun?) and single teeth “from one shilling upwards,” as it is generally put—molars, bicuspids, canines, laterals and centrals in plentiful and tempting array. It is astonishing to what a pitch of mechanical skill some of these—shall we say artists?—reach. We remember watching with the most intense interest a couple of heads in a case, whose mouths kept opening and shutting continually—the one had a perfect set of teeth and the other had none, and

the operator (far-seeing man) had of course made the one minus his molars, not only have the usual sinking and unpleasant look about the mouth, but also made him intensely hideous, while the other countenance was not only agreeable from having a perfect denture, but withal a genial and ruddy appearance, reminding one of the pictures so often to be found in country inns with the inscription under a jovial face, "If you wish to look as I look, do as I do—drink Livingstone's stout." Another, we call to mind, was a mouth opening and shutting, and each of the teeth in rotation retiring and leaving a blank space for about a minute, and then returning. Whether this was intended to indicate that your teeth could be taken out and artificial ones put in their place with the ease and rapidity shown in the window, or to exhibit the unpleasant look of the mouth with the blank space, and its charming appearance when filled up, we know not.

We came across a highly instructive example the other day, where, upon a neatly got up case outside a chemist's shop, appeared the words, "Agent to Mr. —— Surgeon-dentist." What a delightful vista this opens up to the leading members of the profession, who might have agents in the chief towns of England, and do a very large country practice by deputy. Sending an agent to take out a tooth, reminds us of the Irish fiddler, who, unable to attend a concert where he was engaged to play, sent his son, who was "*a broth of a boy with a swate voice*," to take his place. One of the most notable specimens of advertising is to be seen not one hundred miles from Hoxton, in the north-east of London. A husband and wife declare their partnership on the lamp above the gate, as "Mr. and Mrs. ——, Dentists;" then they divide, the wife calling herself "the Lady-dentist," and exhibiting, in a large case, all the usual plates, springs, powders, &c., and, in addition, sundry testimonials from admiring and grateful patients, while the husband—regarding, we presume, the teeth as of the genus *excrescentia*—turns his attention to collateral branches, and announces in large capitals, "Corns, bunions, painful toe nails and warts removed without pain." Thoughtful dentist and lucky sufferer—at one visit—we suppose not for one fee—the mouth, the hands, the feet, can all be seen to. This gentleman really seems to be a walking specimen of

all the special departments of a general hospital rolled into one.

Another branch of practical advertising—though we must own of a higher stamp—is that of bringing out a tooth powder or tooth paste. The method adopted in these cases appears to consist in getting a chemist to put up the powder in boxes or bottles, with as neat a label as possible, setting forth that the article is “prescribed” by so-and-so. This is done more at the West End than elsewhere, we fancy, and the chemists’ shops in Bond Street are perfect emporiums for what we may call “proprietary tooth powders.” At one shop we visited, no less than seven preparations were put before us, and it would almost appear that “our American cousins” as usual, head us here as elsewhere, for of these seven, four were American, two were French, and only one English. The way too of displaying qualifications varied much, some of the prescribers merely styling themselves plain “Dr.,” others putting D.D.S. after their names, while one gave full particulars of his appointment in a certain well-known establishment. Fancy Sir William Jenner having one of his prescriptions made up, and getting Messrs. Savory and Moore to bring it out as a cure for headache, “prescribed by Sir William Jenner, Bart., K.C.B., Physician to the Queen.” It would be at once condemned, and so we think should those we have referred to. At another shop in Bond Street we saw four such preparations, at another two, and so forth.

We presume that a jointly advantageous arrangement is made between the dentist and the chemist, and that the former gets a royalty upon each box or bottle sold, while the latter takes the risk of its not paying in consideration of the chance of selling other articles to the customers who come for tooth powder. We should like to hear a dentist saying to his patient—rubbing his hands the while—“By the bye, what powder do you use?” “Oh, I generally have camphorated chalk.” “Because Mr. Jones, the eminent chemist, makes a very nice one from a prescription that—at his particular request—I wrote for him, and I think you will find its use advantageous.” We suppose that he does not actually sell it himself, though we did hear, the other day, of an eminent dentist whose footman does a large trade in powder, paste, brushes, &c., at, we have no doubt, a *remunerative rate of profit for somebody*.

Was it not Dickens who wrote of a certain doctor carrying always the card of a neighbouring and friendly undertaker, with whom he "did business?" We confess to being reminded of this by what we may call "the powder dodge."

This method of advertising may be called the "indirect practical," but it is still a form that we think should be put a stop to, and certainly those who adopt it have no plea for objecting to those who use the "direct practical."

There are various other methods of advertising to which we propose to call attention, and meantime we should be glad for information of any cases, of which our readers may be aware.

The Month.

MR. TOMES, F.R.S.

We are glad to hear that Mr. Tomes, who has been suffering for some time past from a severe attack of bronchitis, is now very much better, and that no further cause for anxiety at the present time exists.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

At a meeting of the Council on the 11th ultimo, Mr. John Birkett, one of the vice-presidents of the College, was elected a member of the Dental Board, in the vacancy occasioned by the resignation of Mr Hancock.

NEW ELECTRIC MALLET.

We hear from our American correspondent that an Electro-magnetic Mallet, weighing a little over 4oz., of compact and graceful-looking device, producing little more noise than that caused by the electric discharge—will shortly be in the market. The instrument is being manufactured by S. S. White, and an illustration of it will probably appear in the advertising pages of next month's *Dental Cosmos*.

KIRBY'S AUTOMATIC MALLET.

MR. EDITOR,—Permit me, through the *Review*, to call the attention of its readers to the improved Kirby Automatic Plugger. As I found the instrument some months ago it impressed me as containing something good but undeveloped. The manner of delivering the blow by a hammer seemed to be a good imitation of the hand mallet, but upon using it for impacting gold, I discovered that at least one half of the force of the blow was wasted.

The cause of this loss was that the hammer and plunger-holder being virtually one piece, the hammer delivered the blow against itself. This defect I have remedied by detaching the plunger-holder from the arm, which raises the hammer, and causing it to extend through the end of the arm, terminating in a small head, giving it a play of one-sixteenth of an inch, sufficient to produce a *live blow*.

In the original there were no adequate means of modifying the blow. This I also corrected by placing a small set screw under the hammer-arm, by which means any degree of condensing force may be applied. To those who make use of cohesive gold, and object to the employment of an assistant to use the hand mallet, I would recommend a trial of this improved Kirby.

C. Ash and Sons made these improvements for me.

Yours, GEO. W. FIELD, D.D.S.

PATHOLOGICAL SOCIETY OF LONDON.

MR. HEATH exhibited a case of epithelioma of the tongue and lower jaw in a female, set. 52. When first seen there was extensive disease in front of the tongue, with infiltration of the sublingual tissues. Two months later Mr. Heath removed the diseased structures by laying open the lip down to the hyoid bone, sawing through the jaw on each side of the symphysis, and removing part of the tongue and subjacent soft tissues with the galvanic écraseur. The patient made a good recovery, and although three inches of the jaw were removed, the two halves came well together. The tongue was chiefly free from disease. There was not much pain in the part, but the patient had suffered from pain in the occipital region, which disappeared after removal of the mass. This could hardly be due to extension of the disease to the base of the skull, as in a case recently reported.

PORTRAIT OF A CHAIR.

After Dickens.

It was a chair. Oh! there was no doubting the fact. The usual quantity of legs, arms and back, showed it in the first place. But there are chairs and chairs. The veriest baby on spying it out would have said—if it could—"Dat's a tare." A savage from the most uncivilised part of the world (wherever that may be), who, when tired, squats himself down on Mother Earth, and has never seen a chair, wouldn't need a hint, but would throw himself into it the moment he saw it. A soft, easy, comfortable, luxurious chair. Just the right amount of cushion to make it really easy, and the seat the proper distance from the ground to let you feel your legs without having either to support them yourself, or let them dangle in the air. A chair to make a happy man

still more happy, and a discontented, bad tempered man amiable, if not jovial. It *was* a comfortable chair. No knobs or buttons to leave impressions upon you as if you were a drop of melted sealing-wax. No obtrusive bits of horsehair that made themselves intrusive as regards your flesh. No! no drawbacks of this description, but with a head rest to make it more luxurious. Not a gimcrack affair that let your head slip, or broke off altogether, giving you a chance of dislocating your neck, but a strong, solid, well-fitting, let-you-know-it-was-there kind of head rest. Yes it *was* a chair. A rest-and-be-thankful, never-to-be-given-up-if-you-could-help-it chair. But it had one blemish, and that *was* a blemish. It made one hesitate to make use of it, to put off sitting down in it as long as one possibly could, in short, almost to dread seeing it—*It was a dentist's.—The Koh-i-Noor.*

On Irregularities of the Teeth and their Treatment.

A Clinical Lecture given at the National Dental Hospital, 149, Great Portland Street, W., on Wednesday, Nov. 24th, 1875,

BY G. J. WILLIAMS, L.D.S.

GENTLEMEN,—I purpose this morning to make a few observations on irregularities of the mouth and their treatment. This subject forms a very interesting part of our profession and one that requires much thought and attention to enable us to treat successfully the many forms that present themselves to our care. The causes that prevent the permanent teeth presenting themselves in their normal spaces are various. The non-removal of the temporary teeth at the proper time being, perhaps, the most prolific. The quick eruption of the permanent teeth, when the growth of the maxillary arch has not kept pace with them, the very bad habit some children have of sucking their thumbs, the eruption of supernumerary teeth, and accidents, all tend to operate on the dental structures so as to impede or alter the development of the second dentition, and to make those departures from what we all so much admire, a regular and well-formed set of teeth.

One of the most simple forms of irregularity is the appearance of one or both of the superior incisors within the dental arch, owing, generally, to the non-removal of the temporary centrals at the proper time, and as development takes place, the displacement increases, owing to the action of the lower teeth biting on the labial surface of the upper,

and thus directing that tooth inwards, whilst the lowers get more prominent by the aid of such wedge-like action. If this derangement be seen to soon after the tooth has well shown itself, a speedy success will ensue. Of all ways of treatment, that which I have found the best is as follows: having procured a model of the lower jaw of about eight teeth, fill in behind the faulty incisors with a piece of wax, so as to allow room for those teeth to move inwards; then scrape a portion of the labial surface of the same teeth, so that the frame you make may cause a pressure upon them whilst being worn. Having procured the duplicates in metal, proceed to nicely adapt a gold or silver frame, capping the whole of the teeth. On the cutting edges of the faulty teeth solder an inclined plane, so that the upper tooth may impinge on its front surface as shown in this case, and this tooth will, in the action of biting, be pressed outwards, and the lowers, by the pressure of the frame, will be moved inwards. I prefer metal in these cases to vulcanite, as it can be bent or added to with greater facility than either vulcanite or bone. Having satisfied yourself that the frame is well adapted to its purpose, you must impress upon your patient the necessity of constantly wearing the frame, and every two days it will be best for you to see what progress is made, and once you notice the edge of the tooth over the lower teeth, you may remove the frame, as Nature will do the rest.

Another simple form of irregularity is one we have lately had under our notice here, where the two superior incisors are placed so far away from each other as to be very unsightly, and to interfere with the development of the laterals. To alter this, an elastic band, carefully put over both teeth, will, in a short time, bring them together, but great care is needed in the use of this, one of our best friends in practice, for unless carefully watched, some bad results may arise in its use. To keep the band in position it must be pushed well up to the gum, and with its own contractive power, and the action of mastication, a still further tendency upwards will arise, and it will at last so insinuate itself under the gum, as to cause inflammatory action, and all its disagreeable consequences, and unless removed, will cause permanent injury of the teeth it was meant to improve. You will find that a few days will generally suffice to bring the teeth together, and then the band

should be removed, and a piece of ligature silk tied around the teeth to keep them in position, or they will soon return to the *status quo anti*.

The next form of irregularity is one of which we have two cases now under treatment, there is displacement of the two superior laterals within the arch on the palatal surface, being the most frequent position in which these teeth make their appearance when misplaced. The lowers also, as in the first case mentioned, have a corresponding malposition; here the teeth are more developed than in our first case, and require a little more mechanism to move them. First it is essential to keep the mouth open a trifle to prevent the lower teeth coming into apposition with the uppers, and thus prevent their moving forwards; for this case a vulcanite frame is best, capping the back teeth of the upper sufficient to prop the mouth open to allow the incisors to escape each other; two pluggets of hickory wood are inserted in these two projections, prepared, as you see, especially for them, and thus press the offending teeth forwards; these must be renewed for larger ones, as necessity requires, until the required position is obtained. It will be necessary sometimes, as in one case under treatment, to prevent the laterals, in their progress outwards, pushing the centrals out also, and this we have prevented by fitting a band closely on the labial surface of the centrals, and thus holding them firmly in position until the others are *in situ*. When this object is obtained, a new cast of the mouth must be taken, and a very neat frame adjusted in vulcanite to the then perfect state of the mouth, so that the teeth may not return to their old position, which they would do if left alone, and this remark will hold good in all cases where the teeth are acted upon mechanically—they must be kept in their position for some considerable time after they are considered perfect, the greater the malformation, the longer time necessary, and a watch must be kept over the mouth when the piece is taken away, to see if there is any disposition to return. After some months have elapsed, the case may be worn occasionally.

One of the most troublesome cases requiring interference, is when the mouth presents such a form as this one I now show you; you will perceive a most crowded state of the teeth presenting themselves to our notice. The centrals are

forward, the laterals are inwards, and the canine teeth almost occupy the space the laterals would in a well-developed mouth, and there is no room to move them without extracting one tooth on each side. Now you must be guided which you should remove by circumstances. If either of the adjacent teeth are carious, you must extract those, and the six year old molar will mostly be found the faulty one, but if neither are decayed, then the first bicuspid had better be taken away, this will give you less obstruction to get the canines in their place, these being the most formidable teeth to move. There are cases in which it will be best to extract the canines instead of the bicuspids, for if possible to get them backwards, it is questionable if you produce any improvement in the form of the dental arch, for leaning so much as they will in the opposite direction to the other teeth, gives a very ugly look to the mouth, but where practical, keep them. We must proceed in this case somewhat as in the last mentioned; a frame, either in metal or vulcanite, must be adjusted, capping the side teeth, using hickory wood, as before, to push the laterals forward, whilst a clasp of metal made to spring upon the labial side of canines, exerting a pressure backwards and inwards, and a similar band acting upon the centrals. Now great care must be exercised in this case, or you will find the bicuspids and molars coming to the front, instead of the others backwards, and if this should be the case, you must be content with smaller measures, and a longer time in perfecting the case.

This other case I now show you, is perhaps the most difficult and unsatisfactory that presents itself to our notice, and is caused by the patient, during childhood, sucking its thumb. You will perceive the two centrals are very prominent, the arch extremely narrow, and the palate deep, what is required here is to widen the arch at its side, and to bring the incisors backwards, but to expect to bring them back to antagonize with the lowers, from which they are now away three-eighths of an inch, is more than we shall be able to accomplish. Still something may be done to improve its appearance. We will begin by exercising a little pressure upon the lingual surface of the molars and bicuspids; in this way, having procured a perfect model of the mouth, the inner surfaces of the teeth are to be scraped a trifle away before the metal casts are made, a gold frame

is to be nicely fitted to model, and two hooks soldered on its palatal surface opposite the centrals; in some cases one hook will suffice. You will now find, upon placing it in the mouth, an equal pressure is exercised on the side teeth, which will move them out in time, whilst, over the hook, you place two elastic bands to act upon the centrals, bringing them inwards. You will have to alter the frame from time to time, until the requisite width is obtained, which will give you much thought and trouble, as generally the cusps of the lower teeth lock in those of the upper, and act as wedges to retain them in their old positions, and when this is the case you must prevent them antagonizing. I need not say that to press the teeth inwards on the crown of the arch, as it were, is always more difficult than to press them outwards.

There is one other case I wish to bring under your notice this morning, where we have two supernumerary teeth presenting themselves behind the two centrals, the two largest supernumerary teeth I have seen, and which, from their occupying, or nearly so, the places of the centrals, have caused those teeth to pass outwards, giving the appearance of the two teeth of the rodentia. These supernumerary teeth, as you see, were extracted, and astonished us by the size of the fangs; pressure was brought to bear, as in the former cases, upon the centrals, and from the spaces made by the extraction of the other teeth, a comparative easy case was made of it, and as you perceive, much progress is indicated. Now, gentlemen, what may we glean from the observations I have made, as a guide to future practice. First is to diagnose the state of the mouth in all its bearings, and whether any treatment will be beneficial to your patient, for unless you can with some certainty promise a better state of things, it were better left alone, otherwise you will only escape Scylla to be wrecked in Charybdis.

Secondly, having taken the case in hand to give it your most careful study and attention, so as to produce a good result in as quick a time as is possible, for the wearing these frames for a long time may produce results not beneficial to the mouth of the wearer, and you must impress upon your patient the necessity for constant wear, only removing them for sanitary purposes, and where the frame is at all complicated, a visit to the dentist will be better

for that purpose, as the patient may not be able to replace them in their proper positions. There is one effect I must caution you about in wearing some frames for a very long time, and that is—the teeth pressed upon in some cases get retarded in their growth, whilst the others attain their normal development. Consequently you will have those teeth impinging unduly on their opposing teeth, whilst those pressed upon will not approximate within some distance, and a very bad arrangement is the result.

Always let your patient's welfare be the first principal of guidance in your practice, and if undecided as to the best mode of procedure, never hesitate to ask another opinion, for in the multiplicity of heads may be found wisdom. There are some other forms of irregularities that occasionally present themselves to our notice, and these we must defer for another time, having detained you somewhat longer than usual this morning. The most common forms I think I have mentioned, and if you are able to attack and conquer these satisfactorily, our time will not have been lost, and further on we will attack and conquer others.

A Clinical Lecture on the Premature Extraction of the Temporary Teeth.

Delivered at the National Dental Hospital, on December 10th, 1875,

BY THOMAS GADDES, L.D.S.,

ASSISTANT DENTAL-SURGEON TO THE HOSPITAL.

This morning, gentlemen, I shall make a few remarks upon the subject of premature extraction of the temporary teeth.

When a child three or four years old has been brought to the hospital suffering pain from a carious tooth, I have frequently observed that students give as their judgment the necessary removal of the tooth to secure relief to the little sufferer, and I fear that, under similar circumstances, such decisions are carried out, not only by students acting upon their own responsibility, but by others who look back to their "student days" as to a past and finished event.

You are aware of the care we take in preserving the permanent teeth—of our efforts to treat them on conservative principles. I think we should extend that saving principle to the temporary teeth, and attempt to restore them

when diseased, and in removing them to do so deliberately, that they may be retained until the appointed or an approximate time of their room being required, and that for three reasons—their value as organs of mastication,—the influence they have upon the regularity of the permanent teeth—to help Nature to carry out her design.

To the child whose diet consists in part of solid food, the temporary teeth are as valuable in preparing that food for digestion as are the permanent ones to the adult. Indeed, it is more important that the child should have the agents necessary for performing well the first part of the digestive process, for if a child, say four years old, be deprived of a few of its organs of mastication, and if it be allowed solid food that it cannot masticate, it is not unfeasible that, by the greater excitability of its nervous system in early life, its delicate digestive apparatus should be deranged, and diarrhoea, convulsions, or other reflex disturbances be set up, as well as the nutrition of the child interfered with. I need only refer you to the tables of mortality, which show a great loss of infantine life, and the cause in, I dare say, the majority of cases, can be traced to the use of improper food—food that the digestive organs (including the teeth) are not adapted to.

The temporary teeth may cause irregularity in the position of the permanent ones, either by their prolonged retention or premature removal, and it is to the latter cause of irregularity that I would now direct your attention. Both Tomes and Salter point out how the prolonged retention of the temporary teeth may be a cause of irregularity, and when such causes exist, they are generally sufficiently evident to the observer to indicate the treatment. But only Salter gives an illustration where the abnormal prominence of the permanent canine, consequent upon the approximation of the lateral and first bicuspid, is very probably due to, and "may arise from, the premature removal of the temporary canine." Upon the whole our English text-books are wanting in directions to the student, regarding the utility of treating the temporary teeth, and the reasons why their presence should be maintained so long as it is well to do so. Tomes clearly shows that the early removal of the temporary teeth is not followed by contraction of the jaws, as was asserted by Bell, but you frequently have before you instances of the gradual approx-

imation of two teeth where an intervening one has been removed.

The chief motives which actuate the dental surgeon to remove the temporary teeth are to relieve pain, and to remedy irregularity, probable or present, in the position of the permanent ones.

The most frequent position of caries in the temporary teeth is, I think, among the molars, and, in your hospital practice here, you have cases almost daily coming before you where your judgment in the treatment thereof ought to be the result of a syllogism, into which has entered the important consideration of the welfare of those that come after; and according to your treatment, so, to a great extent, will your shrewdness be indicated.

The central incisor teeth may be removed, and, as Tomes illustrates, no appreciable approximation of the laterals to the median line occur; and I think the same may be said with regard to the removal of the laterals and approximation of the canines.

Now, if the second temporary molar be removed before the first permanent molar has appeared through the gum, or before the second bicuspid be sufficiently advanced, the first permanent molar will be most liable to advance towards the front of the mouth, and, notwithstanding the development of the jaw, be a cause of irregularity in the position of the second bicuspid, which is most frequently internal to the normal position.

In this patient, aged nine years, the second temporary molar of the lower jaw was removed five years ago, the first permanent molar has since then appeared through the gum, and has advanced so much towards the front of the mouth that there now exists a space between the first temporary and the first permanent molars equivalent to about one third the breadth of the tooth removed, so that the interval between the canine and first permanent molar is much too small to permit the bicuspids taking their normal positions. The first members of that form are now appearing, and consequently, I have this morning removed a first temporary molar from the upper jaw, where the permanent successor is now visible.

This child, aged five and a-half years, has been brought here suffering pain from a second temporary molar, the crown of which is decayed almost to the level of the gum,

and the pulp cavity in each root is quite patent. The first permanent molar is just cutting the gum. Now, though filling is almost impracticable here, yet by treatment the child will have relief, and the well nigh crownless tooth be retained. The treatment will, doubtless, have to be often repeated during the course of three or four years, should any of the tooth remain so long; but if even the roots only could be retained until the desired time, beyond doubt, much service would be rendered.

You will see from these two models of a lower jaw, taken at different times, after the removal of the first and second temporary molars, that the first permanent molar has advanced towards the front of the mouth about one-sixteenth of an inch, as indicated by the inside calipers, and this amount of movement was effected during two months, the time that intervened between taking the two impressions.

Similar and yet more disastrous results frequently follow the premature extraction of the temporary canines. Though this tooth is least liable to caries, yet it is often removed to give room for the incisor teeth.

Here is a case in point. The right permanent central bites inside the lower teeth; the mesial side of the contiguous permanent lateral is directed outwards, and towards the median line, with about one half of the tooth overlapping the central. The temporary canine and two molars are also present. In the treatment of this case, I removed the first temporary molar, leaving the canine standing. By means of a plate, with an elastic band from a wire passing round the second temporary molar, I drew back the lateral together with the temporary canine, and forced the central outwards by a hickory peg. Thus the canine remains, and will afford room for its permanent successor, while the space left by the extraction of the first temporary molar will not be appreciably encroached upon by the advance of the posterior teeth, ere the first bicuspid appears through the gum. Had the canine been removed, as in this case, space would at once have been provided for the lateral to assume its normal position. The first bicuspid would, in all probability, have come forward until it became more or less contingent on the lateral, as has taken place in the subject I have just shown you, leaving no provision for the canine, and thus the case would have

become an example of that condition I have already alluded to as illustrated by Salter. Yet, remember, there are other causes that may produce undue prominence, or abnormal position of the canine, such as want of development of the alveolar portion of the jaw; disproportion between the size of the teeth and the size of the jaw, and the great factor of deformity and irregularity—civilization—which is ever silently at work. Therefore, if the temporary canine be carious and the cause of pain, attempt to retain it by treating and filling, provided it be probable that its permanent successor will not appear through the gum for some time, say nine to twelve months at least; or if you are to treat an irregularity of the permanent teeth, refrain from extracting the canine, if you can possibly get the required room by extracting the first temporary molar. Harris says—"The removal of the temporary *cuspidati* should, therefore, be avoided, when there is reason to believe that the growth of the jaw will provide sufficient space."

Here in this child, aged seven years, the first temporary molar was removed a year ago, yet the posterior teeth have not appreciably advanced towards the canine. Compare this subject with the two cases I have shown you, where the second temporary molar had been removed, and you cannot fail to perceive a difference in the influence upon the regularity of the permanent teeth, that the loss of certain of the temporary teeth have more than the loss of others of the same series.

Whatever modification man in his descent may have undergone, we find him diphyodont, and even his deciduous teeth, unlike those of certain other animals, are far removed from the classification of rudimentary or abortive organs. They are, as I have endeavoured to show, organs of very great importance in the earlier years of life; yet, withal, there are cases on record when the individual has been almost destitute of temporary teeth, and the permanent ones have appeared with even unusual regularity. Nevertheless, in treating those conditions in which the temporary teeth are concerned, we should take that design of nature into consideration, and not unhesitatingly remove even such a deciduous organ as a milk tooth, which might, in all probability, have been retained for some time longer for much usefulness, or a rational purpose.

Speaking of the extraction of the temporary teeth, Harris

says:—"It should only be resorted to for the cure of tooth-ache, the cure of alveolar abscess, to prevent irregularity in the permanent teeth, or in the case of necrosis of the sockets. And even in such cases it is necessary to exercise much judgment how far pain and inconvenience should be endured rather than extract the offending teeth; or how far the chances of injury to the permanent teeth demands the removal of the milk tooth. Their premature extraction is so often followed by a crowded state of the permanent teeth that their indiscriminate removal, for trifling causes, cannot be too strongly condemned." Yet the crowding of the permanent teeth does not at all times follow the premature extraction of the temporary ones as cause and effect, but it does so, as I have endeavoured to show you, in some cases; therefore, whether such be the exception or the rule, we ought to be guided in our judgment by possible or probable consequences.

To summarise, a child may lose its central and lateral incisors, or its first molar of the deciduous set, and no apprehension need be entertained of their permanent successors consequently taking irregular positions. But to remove the canine before the permanent canine is quite perceptible, is to favour irregularity of that important feature tooth.

To remove the second temporary molar before the time I have already mentioned, gives permission for the forward advancement of the first permanent molar; and the earlier that temporary tooth is removed the greater will be the number of teeth (bicuspid and canine) likely to assume irregular positions.

In conclusion, I will add that in treating the teeth of children much patience is required on the part of the operator. I believe you can accomplish much if, by being truthful to your little patients, you win their confidence in you. With either children or adults you will find that if you shake their dependence on you, your progress with the case is interrupted, and the pleasure therein is marred. Therefore, and for nobler reasons, I say, be truthful to your patient, don't say, "I shall not hurt you," when you know that your very next movement will bring you in contact with a vital pulp.

Decomposition of the Dental Pulp the Cause of Periodontitis.

ABSTRACT OF A PAPER ON THE ABOVE SUBJECT
READ BEFORE THE ODONTOLOGICAL SOCIETY, ON DECEMBER 6TH, 1875,

BY A. W. BARRETT, M.B. Lond., M.R.C.S.

WHEN the dental pulp dies, its tendency if uninfluenced is to become putrid. During this process much sulphuretted hydrogen gas is evolved, which makes its way into the mouth through the opening which caries has usually made into the pulp cavity. But it may happen that this aperture is absent, either from decay not having extended so deeply as the pulp cavity, or from the filling up of this opening by a particle of food, or by the operations of the dentist, as when the latter places a filling over an exposed nerve. Then, though constantly this gas is set free from the putrescent pulp, it can find but one road for escape, *that* lies through the opening at the end of the fangs; while doing this, particles of the semifluid nerve *debris* are forced through the fang extremities into the socket in the alveolar process. The result that usually follows inoculation with putrescent animal matter occurs in this case, inflammatory action is lit up around the fang, leading often to the formation of an abscess, and the escape of pus through the alveolar process into the mouth.

The occurrence of this alveolar inflammation depends primarily on a purely mechanical cause, to wit, the expansive action of the sulphuretted hydrogen gas shut up in the pulp cavity, and if the opening at the end of the fang be obliterated, as in old age it often is, the putrid nerve may be locked up in the tooth for years without causing any inflammation outside the fangs, but severe periodontitis is quickly produced around younger teeth in which slight pressure from the contained gas serves to drive a good deal of putrid matter through the large canal and terminal opening in the fangs.

Periodontitis is sometimes regarded as the result of the extension of inflammation from the tissues within the teeth to those without. This does not appear to me to be the pathology of the condition. In nine cases out of ten, I think it is caused by the injection into the socket of putrid particles from the interior of the tooth. On opening the pulp cavity of a tooth around which periodontitis is going on, we find almost invariably the pulp dead and foetid. The act of opening the pulp cavity, will always relieve

the alveolar inflammation, by allowing the gas to escape into the mouth from the interior of the tooth.

A correct knowledge of the mode in which periodontitis is caused, is the key to its successful treatment. If we recognize the fact that the gas imprisoned within the pulp cavity is forcing putrid particles out from the end of the fang into the socket, we shall, by drilling into the pulp cavity, relieve the pressure from the pent-up gas, and speedily cure the periodontitis.

If within a few days of putting a gold filling into a front tooth, the nerve cavity not having been opened, the tooth becomes tender on tapping, and slightly protruded from its socket, we may say with certainty, the nerve within it is dead, foetid, and being forced from the end of the fang by the gas which it evolves. By this process acute periodontitis is being set up around the fang. Guided by a knowledge of the pathology of these cases, we proceed to drill into the pulp cavity, and allowing the exit of the gas, we soon relieve the tenderness of the tooth.

In conclusion we may generalize thus:—Periodontitis, with rare exceptions, is caused by decomposition of the dental pulp, and if the nerve be in a putrified condition, it will cause periodontitis, unless, first, leakage into the socket be prevented by the senile change of obliteration of the terminal openings in the fangs, or, second, an opening exist through the crown into the pulp cavity, allowing the gas to escape into the mouth.

Remarks on one of the Causes of Death during the Extraction of Teeth under Chloroform.

By T. LAUDER BRUNTON, M.D., F.R.S.,

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IN a clinical lecture delivered by the late Professor Syme, several years ago, he made the somewhat remarkable statement that, notwithstanding his constant use of chloroform for many years, he had never had a death from it occur in his practice. The reasons he gave for this success were two. "First," said he, "we always use good chloroform; and, second, we always give plenty of it." Now, others besides Professor Syme have used good chloroform

—have used, indeed, chloroform by the same makers, and altogether undistinguishable from that employed by him; and yet they have had to deplore the occurrence of deaths during its administration. This fact of itself is sufficient to show that the second reason given by Professor Syme for his success is of great importance; and that, in administering chloroform, it is just as necessary to give plenty of it as to use only the best quality. It is, indeed, very extraordinary to see how timidity in the use of chloroform seems to be associated with a more than ordinary fatality; and how the careless—one would say almost reckless—employment of it is frequently unattended with any inconvenience. In Snow's work on *Chloroform*, p. 151, the following passage occurs. "In Guy's Hospital and St. Thomas's, the medical officers had a strong objection to narcotism by inhalation for the first two or three years after the practice was introduced, and chloroform was used much less generally in these institutions than in any other of the hospitals of London; yet it was precisely in these two hospitals that two deaths from chloroform occurred before any such accident had happened in any other hospital in this metropolis." Dr. Snow seems inclined to attribute both of these deaths to the administration of chloroform; but a careful consideration of them may lead us to another conclusion. Before attempting to analyse these cases, however, I wish to recall to the memory of some here an anecdote regarding the introduction of chloroform into the Edinburgh Infirmary, which Mr. Syme was accustomed to relate in his clinical course. One of the surgeons of the Infirmary, I believe the late Professor Miller, had agreed to Sir James Simpson's request to perform, for the first time, an operation under chloroform. Everything had been prepared, and the tray containing the instruments and bottle of chloroform was being conveyed into the operating theatre, when the bearer stumbled and fell, and the whole contents of the bottle were irretrievably lost. There was no time to get more chloroform, and the operation was performed without it. The patient died on the table. Had chloroform been administered, the death would have been put down to the anaesthetic, and not to the operation; and, in all probability, not another drop would ever have been used.

This case shows us—and it is only one of many—that deaths used to occur from shock during operations before

the introduction of chloroform, but they were then put down to their true cause; whereas, since its introduction, one hears little or nothing of death from shock, and much of death from chloroform. Another circumstance which is well worthy of notice, and which ought to be borne in mind, is the frequency with which the remark occurs in the descriptions of these so-called deaths from chloroform, that a fatal result was all the more extraordinary and unexpected because the quantity of chloroform administered had been exceedingly small. Mr. Syme would have said that, instead of being extraordinary, it was the very thing to expect; and if, like him, the operators had given plenty of chloroform, their patients would not have died.

And now let us look at the first two cases of death *under* chloroform—I will not say *from* chloroform—in these two London hospitals, where such a dislike to the anæsthetic was felt.

John Shorter, aged 48, a porter, known to Mr. Solly for some time as a very active messenger, of intemperate habits, but apparently in perfect health, was admitted into George's Ward, under Mr. Solly, on the 9th October, 1849, suffering from onychia of the left great toe, which had existed some time. It was determined to remove the nail, the man having decided, before entering the hospital, on taking chloroform. On Wednesday, October 10th, at a quarter before 2 p.m., he began to inhale the chloroform, with one drachm in the inhaler. It had no visible effect for about two minutes; it then excited him, and the instrument was removed from the mouth, and about ten drops more were added; he then almost immediately became insensible; the chloroform was taken away, and the nail removed. He continued insensible; and, his face becoming dark, the pulse small, quick, but regular, respiration laborious, his neckerchief was removed, and the chest exposed to fresh air from a window near to the bed; cold water was dashed in his face, the chest rubbed, and ammonia applied to his nose. After struggling for about a minute, he became still, the skin cold, pulse scarcely perceptible, and soon ceased to be felt at the wrist; respiration became slow at intervals, but continued a few seconds after the cessation of the pulse.

The subject of the second case was Alexander Scott, aged 34, a police constable, who died in Guy's Hospital in June 1850, whilst undergoing an operation for the removal

of a portion of the right hand. Mr. Cock, the operator, said that he was certain there was no disease about the patient. He described the accident as follows:—The ordinary machine was used; and, as it had not the effect, witness directed that a napkin should be folded into the shape of a cone, which was applied with chloroform. The removal of a portion of the bone occupied one minute and a half; but, before it was completed, the blood, which was gushing out, suddenly stopped, when witness directed Mr. Lacy to feel the pulse of the deceased, and they found that the deceased had expired.

The sudden stoppage of the haemorrhage shows that, in this case, as in others, the action of the heart was suddenly arrested. The first attempt to cause insensibility failed in this as in some other cases.

Let us take yet another case, the second one ever recorded of death under chloroform. The patient, a healthy woman, thirty-five years of age, was taking chloroform in order to have several teeth extracted. The following account of what occurred was given by two female friends of hers who were present at the operation. "The respiratory movements appeared to be free; chest heaving. Whilst inhaling, the face became pale. At the expiration of about one minute, the instruments were applied, and four roots of teeth were extracted. The patient groaned, and manifested what they regarded as evidences of pain, while the teeth were being extracted, although she did not speak, or exhibit any other sign of consciousness. As the last root came out, which was about two minutes from the beginning of the inhalation, the patient's head turned to one side, the arms became slightly rigid, and the body drawn somewhat backwards, with a tendency to slide out of the operating chair. At this instant, Mrs. Pearson states, she placed her finger upon the patient's pulse, observed it was feeble, and immediately ceased to beat. The face, which was previously pale, now became livid, as did also the finger-nails; and the lower jaw dropped, and the tongue projected a little at one corner of the mouth, and the arms were perfectly relaxed. The females regarded her as being then quite dead."

In two of these cases, death occurred after the inhalation of chloroform had been discontinued; and in the third, the chloroform seemed to have no bad effects until the

operation was begun. In all of them, the death followed the operation, and must, I think, be attributed to the shock caused by it. But what is shock? and is there more than one kind of it? for the symptoms were not the same in all these cases. In two of them, the heart seemed to stop suddenly; while, in the third, it failed gradually, although it ceased before the movements of breathing; and the death must therefore be attributed rather to arrest of the circulation than of the respiration. The circulation is kept up in the body by the heart constantly pumping the blood out of the veins into the arteries. Whenever the heart stops pumping, or whenever it gets no blood to pump, the circulation will stop. It does not matter how much blood is in the vena cava or right auricle waiting to be sent into the arteries, if the heart be not beating; nor is the case a whit better when a wound in the jugular has drained away all the blood, so that no efforts of the heart, however numerous and however vigorous, can send a drop of blood into the aorta.

It must be recollected that blood is only useful to the tissues when it is in the arteries, just as water is only available for household purposes while it is in the cistern or supply pipes. Once the water gets into the sewer, it is of no more use, unless it can be filtered and again pumped back into the cistern; and once the blood has got into the veins, it is no more use unless it can be purified by the lungs and pumped back into the aorta, from which it may once again pass to nourish the tissues. The only difference between blood still in the veins and blood which has run out of them into a basin, is that, when in the basin, it cannot get to the heart, and be pumped by it into the arteries; while, so long as it is in the veins, it generally reaches the heart readily. But although it does generally reach the heart easily, it does not always do so. Sometimes it accumulates in the veins of the abdomen, and never reaches the auricle; so that it might just as well be in a basin for any use it is to the heart or body. This was shown by Professor Goltz of Strasburg by a remarkable experiment. After exposing the heart of a frog, he noticed that it beat regularly, and at each beat sent a quantity of blood into the aorta, again becoming full of blood in the interval between the pulsations. The frog's heart is partially transparent; so that it is easy to see by its colour

when it is empty and when it contains blood. He now struck the frog's intestines pretty hard, and found that the heart stopped. The irritation produced by the blow had been conducted up to the medulla oblongata; and being reflected down the vagus nerves to the heart, had stopped it. After a little while the heart seemed to recover, and began to pulsate again. But there was a very remarkable difference between its appearance now and its appearance before the blow had been given. Instead of becoming filled with blood during each diastole, and assuming a deep red colour in consequence, it remained quite pale and empty; and, although it contracted vigorously, the circulation stopped, for the heart had no blood to propel. On looking at the vena cava, Goltz found the cause of this phenomenon. The frog was hanging with its legs downwards, and the vena cava was not full up to the level of the heart. Usually the vena cava and veins of the intestines are kept in a state of semicontraction or tone by the vaso-motor nerves, but now they had become completely relaxed; so that the blood which usually would have filled them completely up to the heart was not sufficient, and so they were only about half full. On laying the frog in a horizontal position, the blood ran towards the heart. It was thus evident that the blow on the intestines had done something more than stop the heart. It had also stopped the usual action of the vaso-motor centre; so that the veins, instead of remaining in a state of tonic contraction, became widely dilated. And, be it noticed, this dilation of the veins in Goltz's experiments was more permanent than the stoppage of the heart, and continued after the cardiac pulsations had recommenced. But all frogs are not alike; for sometimes a blow on the intestines will stop the heart without having much effect on the veins; and sometimes it will cause the veins to dilate, and will not stop the heart, although very often, as I have already said, it will do both. The same effects seem to follow blows on the abdomen in man and in the frog, but with this difference: in the frog, the heart may stop for some time, and again go on without much injury to the animal; in man, the stoppage of the heart produces death in not many seconds. A good example of this is to be found in Sir Astley Cooper's *Lectures on Surgery*; where he relates that a healthy labourer belonging to the India House was attempting to lift a heavy weight, when ano-

ther labourer came up and said, "Stand on one side; let an abler man try." At the same time, he gave the former a slight blow on the region of the stomach, when the poor fellow immediately dropped down and expired. On examination of his body, there was not any mark of violence discovered. Here, no doubt, the blow in the abdomen stopped the man's heart, just as it does in the frog; and death occurred before the organ had time to recover from the shock. In another case, described by Professor Fischer, a young man was struck in the abdomen by a carriage-pole; and, after the accident, lay pale and motionless, with a feeble pulse, empty arteries, deep sighing respirations, and a livid tinge on his hands and lips. In this instance, the heart had either not been stopped at all, or had speedily recovered itself; but the abdominal veins had been so dilated that all the blood in the body could hardly fill them sufficiently to leave a driblet over for the general circulation, although a little did still trickle into the heart so long as the patient remained in the recumbent posture.

We have, then, two forms of shock, according as the injury produces its effect chiefly in the heart or chiefly in the vessels. But it is not merely blows on the abdomen which have the power of producing shock; irritation of other parts can do so likewise; and this seems to be peculiarly the case with regard to bones. Thus Pirogoff records two cases in which death occurred during operations before the introduction of chloroform. In both, the pain and loss of blood during the operation was only a little greater than usual; yet in both, *immediately after* the bone had been sawn through, the face became pale, the eyes staring, the pupils dilated, a peculiar rigidity of the body occurred, and death immediately took place.

The symptoms in these cases of Pirogoff's are almost exactly the same as those of Mr. Cock's case I have already described; but Pirogoff's deaths were put down to the operation, because no chloroform had been given; while the death in Cock's case was ascribed to the anaesthetic, because some chloroform had been administered; although, on account of the operator's unwillingness to give it at all, the quantity was probably very small.

In all three, it is evident that the heart stopped suddenly; and this in itself was sufficient to cause death, though it is highly probable that dilatation of the abdominal vessels also occurred.

In Mr. Solly's case, the dilatation of the abdominal vessels seems to have been the chief cause of death; for the pulse became gradually, though rapidly, weaker and weaker, and then stopped altogether, just as we would expect it to do if the heart suddenly ceased to be supplied with blood.

In the third case I have described, probably the heart was chiefly affected; for just as the fourth stump of a tooth was removed, the pulse was felt to be exceedingly weak, and almost immediately afterwards became imperceptible.

Stoppage of the heart's action, then, being of such importance as a cause of death, we must now inquire how it is produced. The heart is kept pulsating rhythmically by the motor ganglia, which it contains within itself, and will continue to pulsate for some time after its complete removal from the body. But though it thus shows its power to contract independently of the central nervous system, it is, nevertheless, influenced to a great extent by the nerve centres within the cranium. It would never do to have the heart acting without reference to the wants of the system, and pumping blood vigorously into the arteries when the pressure within them was already too great, or acting slowly and feebly when the limbs were engaged in severe work, and wanted an abundant supply of blood to enable them to perform it. There are, therefore, nerves, some accelerating and others retarding the heart, which pass to it from the medulla oblongata, and, acting as the spur and reins of a rider do upon his horse, regulate its beats in accordance with the wants of the system. The retarding fibres are contained in the vagus nerve; and, when this nerve is irritated strongly, the heart will either stop immediately in diastole, or will beat very slowly and more feebly. Nor is it only by direct irritation of the vagus that this result can be attained. Just as irritation of a sensory nerve sets motor nerves in action, and produces various muscular movements by reflex action through the spinal cord, so may irritation of a sensory nerve set the vagus in action and produce stoppage of the heart, by acting reflexly through the medulla oblongata. A good many sensory nerves can do this; but there is one which possesses the power in an especial degree. The roots of the fifth nerve are anatomically closely connected with those of the vagus; reflex stoppage of the heart is produced more readily by

irritation of the fifth than of any other nerve. In many rabbits, the heart can be instantaneously stopped by irritating the nasal branches of this nerve by a pungent vapour, such as ammonia, held before the nose. In every rabbit, or almost every rabbit, indeed, we can stop the heart by a pungent vapour applied to the nose; but we do not always do it in the reflex manner I have just described. The animal always closes its nostrils to prevent the entrance of the vapour, and keeps them closed so long, that the carbonic acid accumulating in the blood begins to act on the vagus and stop the heart. But this only occurs after the vapour has been held before the nose for some time; while the reflex stoppage which I have just mentioned takes place at once, almost simultaneously with the closure of the nostrils. This reflex stoppage has been shown by Hering and Kratschmer to be due to the irritation being conveyed along the nasal branches of the fifth nerve to the medulla, whence it is reflected along the vagus to the heart, and stops it.

Yet, notwithstanding the stoppage of the heart, the rabbit does not die; nor is it, indeed, any the worse. Why is this? Usually, when the heart is stopped, as, for example, when a ligature is put round the aorta, the blood all runs out of the arteries into the veins; and then, as I have said, it is useless for nutrition. But there is a nervous arrangement which prevents this when the heart stops, in consequence of an irritation applied to the fifth nerve. This nerve not only contains branches which are connected with the vagus and stop the heart or retard it; but it also has branches which go to the cerebral hemispheres, and there excite an action which passes down the vaso-motor nerves, causing the auricles to contract, and preventing the blood from running out of the arteries into the veins, except very slowly indeed; so that, as soon as the irritation stops, the circulation is ready to go on normally. But it is only when the cerebral hemispheres are in good working order that this occurs. When they are removed, or when their function is destroyed by chloroform, morphia, or chloral, irritation of a sensory nerve, such as the fifth, no longer has the same effect; and it then always, according to Cyon, lessens the pressure of blood in the arteries. As it is the pressure of blood within the arteries which keeps up the flow within them, just as it is the pressure of water within

the pipes supplying a town which keeps up the supply to the houses, we can readily see that the diminished pressure which occurs on the irritation of a sensory nerve after the cerebral hemispheres have been rendered useless by a small quantity of chloroform is a most serious thing for the animal. But here it is a little chloroform which is a dangerous thing; and a full dose prevents any risk from this reflex stoppage of the heart. For the small dose acts on the cerebral hemispheres first, and destroys the reflex action, which contracts the vessels, while it leaves the ganglia at the base of the brain and the medulla unaffected, and thus allows the reflex stoppage of the heart to go on as usual. A full dose, on the other hand, affects not only the cerebral hemispheres, but the ganglia and the medulla, and prevents any reflex action whatever on the heart. I have found that, when a full dose of chloroform has been given to a rabbit, one may hold either strong ammonia or glacial acetic acid before the nose, and not the slightest slowness in the beats of the heart can be observed. Sometimes, indeed, it has seemed to beat rather more quickly than before.

Now let us try to apply these observations on the lower animals; and, by them, try to explain the action of chloroform on man, and the danger of employing it in the extraction of teeth, as well as in other slight but painful operations. For it is precisely in these slight but painful operations—extraction of teeth and evulsion of nails—that death most frequently occurs; and it is just in them that little chloroform is given, because the administrator thinks: “Oh, the operation won’t last above a few seconds; and it is no use giving the patient enough to keep him or her snoring for half-an-hour.” We know perfectly well that many and many an one has teeth drawn under chloroform without any bad result; and we have already seen that every rabbit has not the same liability to reflex stoppage of the heart from irritation of its fifth nerve; but every now and then we meet with a peculiarly sensitive animal, and every now and again we meet with a case of death from the extraction of a tooth under chloroform.

If the nervous system in man be at all like that of the rabbit, the violent irritation of the fifth nerve caused by the extraction of a tooth will tend to stop the heart. But it will also cause contraction of the blood vessels; and thus

extraction of a tooth in the waking state is rarely attended with any serious consequences. But if the reflex action on the blood-vessels, which usually occurs in the cerebral hemispheres, be prevented by a small dose of chloroform, just enough, as in the case I have related, to abolish consciousness without preventing reflex action in the ganglia at the base of the brain, and if the heart of the individual be at the same time peculiarly sensitive to the impression made on the fifth nerve, it may be stopped, and the pressure of blood in the arteries may sink so low that it never rises again. But if, on the other hand, chloroform be given, as Professor Syme recommended, with a free hand, so as to produce total abolition of reflex action, no irritation of the fifth nerve by the extraction of any number of teeth will have any effect; the heart will pulsate as usual; and no danger is to be apprehended from this cause.

I do not at all mean to say that the administration of concentrated chloroform-vapour is free from danger—far from it; but the limits of my paper will not allow me to enter into this subject. All I can attempt to do is to direct attention to the observation of Professor Syme, whose acuteness and accuracy few will question; and to try to impress it, by showing the probable physiological reason why one ought always to induce perfect anaesthesia before beginning any operation under chloroform. At the same time, I would observe that, just as the circulation, which had ceased in the frog in Goltz's experiment so long as it hung vertically, went on again when the animal was laid in a horizontal position so that the blood found its way to the heart, so it may go on in man; and, therefore, the safest position for operations is the recumbent one.

The two rules, then, for preventing death during the extraction of teeth under chloroform are: put the patient thoroughly over, and lay him in a horizontal position.

DOUBLE FACIAL PALSY, WITH LOSS OF TASTE IN THE FORE PART OF THE TONGUE.—Dr. Robert McDonnell read a paper giving a detailed account of a case of complete paralysis of the *portio dura* of the seventh pair of nerves in an otherwise healthy young man of twenty-four years of age, occurring on both sides. There was no evidence of any central lesion of the brain, nor were any other cerebral nerves engaged. There was complete loss of the sense of taste in the fore part of the tongue, which the author attributed to paralysis of the *chorda tympani*. Tactile and thermic impressions were perceived in the forepart of the tongue quite as distinctly

as in healthy persons. In conclusion, the author compared his case with one recorded by Dr. Althaus in vol. iii. of the *Medico-Chirurgical Transactions*, in which there was paralysis of the fifth pair on both sides, and in which the sense of touch in the tongue was lost, that of taste persisting.—(*Royal Medical and Chirurgical Society.*) *Medical Times and Gazette.*

On the Rapid Relief of Neuralgic Pain.

By SPENCER THOMSON, M.D.

AMIDST the various improved methods of treatment which have become established in the practice of medicine during the last twenty years, none are more strikingly beneficial than those which enable us to subdue, with tolerable certainty and celerity, the agony of neuralgic pain, or of what, for want of a better word, or perhaps deeper knowledge, we call neuralgia. It needs not but to refer to works on Practice of Medicine, published not so long since, to see how little comparatively in the way of relief could be afforded during the paroxysm. For this external applications were chiefly trusted to, in the hope, often vain, that they might in some degree palliate the suffering, until the disease itself had been conquered after a longer or shorter interval by the not always certain quinine, carbonate of iron, arsenic, or other antiperiodics. All this is greatly altered, and I think we may now congratulate ourselves that a large number of cases of so-called neuralgia may be quickly, either permanently cured by the relieving remedy, such as phosphorous, or relieved, until such time as specially curative agents, or curative general treatment, have removed the tendency to the recurrence of the pain. As one of the newest of the remedies, I would first allude to one which is much too slowly making its way into the domain of practical therapeutics; I allude to the recently introduced "tincture of Gelsemium semper-virens," or yellow jasmine. In my presidential address delivered before the South-Western Branch of the British Medical Association, in 1874, I alluded to this remedy as having proved very successful in my hands, and in a paper I read this year at the Plymouth meeting I was able to state how fully it had fulfilled my expectations during the twelve months that had elapsed since my former notice of it. Directly or indirectly it had been used by me, or by my authority, in at least forty cases to which it was applicable, and with almost constant success. In using the word "applicable," I do so in accordance with my own experience that the remedial power of the gelsemium seems confined to those branches of the trifacial nerve supplying the upper and lower jaw, more particularly the latter, and more especially when in either jaw the pain is most directly referred to the teeth or alveoli; indeed, I can scarcely recall an instance of the above in which relief was not speedily and thoroughly given. The usual expression of the patient has been, "It acted like a charm." In illustration I give one case.

On Sunday afternoon, June 20th, the housemaid of a friend, a retired medical man, came to me with a note from her master, stating that she had been suffering from agonising pain, of what was thought to be tooth-ache, for six-and-thirty hours. Nothing gave relief, and no dentist could be found to remove the only suspicious tooth. I sent her home with a bottle of gelsemium tincture, which I kept for home use, desiring

that she should have twenty minimis at once, and twenty more within two hours if not relieved. Her master sent me a note in which he stated that the patient had experienced immediate relief.

The above case was not one of distinct toothache, but rather of pain affecting the alveoli generally of the affected jaw. Still, even in toothache seated in one tooth, the remedy gives relief, provided, of course, abscess is not actually in formation. I have observed above, that, according to my own experience, the beneficial effect of the gelseminum is confined to neuralgic pain of jaws generally, and of teeth and alveoli more particularly; and a short paper in the *Practitioner* for August, 1875, by Dr. Gamgee, of Birmingham, supports the view. In September, 1875, there were published some cases of other neuralgia, even one of sciatica, in which cure was effected, under the care of Dr. A. Jurasz, of Heidelberg. Should the remedy indeed prove generally useful in neuralgia, it will of course give it additional value in our *materia medica*, but at present it has gained no such position, either according to my experience, or, as far as I can learn, that of most others.

In the notices I have met with on the use of the gelseminum, the doses quoted seem all too small. I now almost invariably prescribe, for an adult, twenty minimis of the tincture as a first dose, to be repeated any time after an hour and a half if relief is not given. I have rarely had to order a third dose, and I have never found any inconvenience result from the larger doses. In one instance, a gentleman who, unadvisedly, took thirty minimis at once, and immediately afterwards went out driving, told me he experienced for an hour or two some uncertainty of vision when guiding his horse. A severe attack of neuralgia of the jaw was, however, cured by the one dose, and did not return. One young lady, to whom I gave two twenty-minim doses during the night for a severe neuralgic attack, more particularly of the temporo-auricular branch of the inferior maxillary nerve, complained of a little heaviness next morning. In this case little if any relief was given; but the teeth and alveoli were not implicated, and it is only when these are that complete relief can be calculated on according to my own experience.* The above case was at once cured by the solution of phosphorus, to be noted presently.

As further illustration, I may mention the case of a lady who was under my care last winter for local disorder, but who also suffered severely from neuralgia, attacking at one time the lower jaw and at another the orbital and frontal nerves. The gelseminum invariably relieves the maxillary pain, but has no effect whatever over the frontal. For this, however, for a long time at least, I found a most efficient remedy in phosphorus, given in the liquid form. The form I have used is that given by Ashburton Thompson in the *Practitioner* for October, 1873. It is taken without repugnance, rarely causing disorder of the stomach or eructation, and, what is most important, keeping perfectly. One of the cases I have mentioned was treated with a preparation which had been made four months at least. I have found a twenty-minim dose, equal to thirty-sixth of a grain of phosphorous, give rapid relief, and, what is important, independent of locality.

* That gelseminum has not yet received the attention it merits is evident from the difficulty of procuring it. During the meeting in Edinburgh in August, I enquired for it in vain at most of the principal chemists.

Even phosphorus, however, we know, will, after a time, lose its power in some obstinate cases of neuralgia—at all events, its power of giving rapid relief; and then it is that the invaluable hypodermic administration of morphia comes to our aid. This remedy, and its mode of administration, are too well known to require comment here; but it is far from being as generally employed as it ought to be. This, perhaps, is due to various causes, but of these I believe the principal are—the means of administration not being always readily available, and the objection of patients to the pain consequent upon the use of coarsely constructed instruments. The first of these objections I have endeavoured to meet by the use of a very portable hypodermic apparatus, enclosed in a metallic case, with ample supply of needles, and the great desideratum, an always moist and efficient piston; and by always carrying a supply of Sansom's gelatine discs, as made by Messrs. Savory and Moore. The second objection is met by the use of very fine steel needles only, as made for me by Mr. Hawksley, of Oxford-street. The discs, which contain one-sixth of morphia in each, are a very safe and efficient dose for most cases, although in most it may be well to begin with a less amount, and in many it may be advisable to increase the dose considerably—half a grain, or even double that amount. I may here give it as the result of a very large experience in the hypodermic administration of morphia, that concentrated solutions are the reverse of advantageous. In the first place, they are not so safe as the more dilute; and, in the second, they do not act so quickly and agreeably. The usual strength I employ is one grain of hydrochlorate of morphia in forty minims of water, rarely in thirty. The slight increase of bulk is of no consequence, and in administrations I can count by the thousand I have never seen the slightest bad consequence, in the way of abscess or otherwise, result to the patient.

With morphia, and occasionally—but only occasionally—atropia, to use hypodermically; with phosphorus in solution; with gelatinum, aided at times by the ordinary external appliances, such as heat, or freezing if need be; aconite, and chloroform,—one ought to feel fully prepared to meet and subdue at the time most cases of neuralgic pain, and, indeed, of pain generally.

Of course the after-treatment, which is to obviate the recurrence of the disease, does not fall within the scope of this paper. This paper would not, however, be complete without some notice of other remedies which have lately come to the front in the treatment of neuralgia. Of these the Calabar bean, as advocated by Dr. Munro, deserves a thorough trial. In one case only have I used the discs introduced under the eyelid, but in that a severe frontal neuralgia was certainly alleviated; having other remedies in which I placed confidence, I probably did not persevere sufficiently. Fleming's tincture of aconite in one minim doses repeated at intervals of an hour, I have found relieve severe neuralgia of the eyeball, and the tincture of actaea racemosa very useful when pain in the same situation seemed the result of a general rheumatic condition.

The object of this paper, however, is not to enumerate the long list of remedies, internal and external, which have been used in the treatment of neuralgia—a list which shows how urgently a successful treatment was needed,—but rather to direct attention to the remedies I have dwelt upon. I cannot, however, close without adverting to Dr. Evans's paper in the *Practitioner* for September, 1875, upon "Nitrite of Amyl in

Facial Neuralgia." His account of the relief afforded in the anæmic cases would point to this new agent as one requiring careful trial, hopeful of results.

Aahton, Torquay.

KING'S COLLEGE HOSPITAL.

Operative Interference in Cases of Cleft Palate.

BY SIR WILLIAM FERGUSSON, BART.

AT p. 784, vol. ii., 1873, of this journal, we described the details of operative procedure that had just been adopted by Sir William Fergusson for the closure of the cleft in the hard palate, in place of the Langenbeck operation. Although the operation had suggested itself to the mind of Sir William quite independently, and was thought at the time to be original, he subsequently discovered that a similar device had been recommended by Dieffenbach, although there was no evidence to show that that surgeon ever carried it into effect. Since the first notice, we have at various times published the notes of several cases in which the operation has been practised, and announced two or three modifications of the operation as originally performed. During the past eighteen months Sir William has operated in this manner in a large number of cases, both in hospital and in private practice, some of which would have been quite beyond the reach of the ordinary operation. Instead of stripping mucoperiosteal flaps from off the hard palate, after the plan of Mr. Avery and Langenbeck, and bringing them together in the middle line so as to close the opening, Sir William Fergusson detaches a piece of bone on each side of the cleft, and then forces the bone, periosteum, and mucous membrane towards the middle line and fixes them there. The steps of the operation are briefly as follows:—The patient is first put under the influence of chloroform, followed or not by ether, and the jaws kept wide apart by means of a gag. The levatores palati and the palato-pharyngei muscles are then divided by means of a rectangular knife. After this the mucous membrane is pared from the edges of the cleft, care being taken to remove mucous membrane only. Two apertures are then made, with an awl, through the hard palate on each side of the fissure and close to the edge, the holes on one side exactly corresponding with those on the opposite side. A fine silk suture is then passed from the mouth through each of the holes on one side, across the floor of the nasal cavity, and made to enter the mouth again through the corresponding holes of the opposite side. An incision from before backwards is then made through the mucous membrane and periosteum on each side, just outside the sutures. The operator, by means of a small chisel, next cuts through the hard palate in the site of these incisions. The two pieces of bone thus detached are then forced towards the middle line, and fixed by means of the sutures. Where the hard and soft palates are operated on at the same time, Sir William usually puts two sutures into the hard palate, and three in the soft, and fixes them in the following order:—Reckoning from before backwards, the second suture in the hard palate is first tied, then the three sutures in the soft palate, and last of all the foremost suture in the hard palate. When everything is thus made firm, lint is placed into

the apertures in the hard palate made with the chisel; and allowed to remain two, three, or even four days. The lint is then removed, the sutures taken out, and the parts left to recover. It is interesting to note that the hard palate soon becomes consolidated, so that in a few months it often seems to be bony throughout; or, if not bony, to be at least made up of very dense fibrous tissue.

On Saturday last we saw the operation as described above performed on a man aged about thirty, whose case had previously been considered almost too bad for any surgical interference, the patient having for many years worn an obturator. On the same day we had the opportunity of observing the excellent results obtained in three or four other cases that had been operated on within the last four or five weeks, and are still in the hospital.—*The Lancet.*

Odontological Society of Great Britain.

ORDINARY MONTHLY MEETING, DEC. 6TH, 1875.

ALFRED COLEMAN, Esq., took the chair in the absence of the President from indisposition.

After the usual formal business, Messrs. Underwood and West were elected auditors, to examine the accounts of the Society prior to the Annual Meeting.

Mr. TURNER exhibited a specimen of true exostosis. It was a solitary second bicuspid, and had been removed with considerable difficulty, as was evident from the shape of the bony tumour which was found on the fang.

Mr. HUTCHINSON brought forward a case in which there had been considerable elongation and separation of the central incisors, in a patient aged about 29. The elongation was increasing at about the rate of one-thirtieth of an inch in three months. The appearance presented was very unsightly, and he was at a loss to understand the cause, and should like to know from some of the members whether the case was remedial.

The CHAIRMAN said the case was interesting because infrequent. He was inclined to think that the cause was more especially due to the loss of the teeth at the back. He thought the difficulty could be met, to a considerable extent, by supplying some teeth to the upper jaw to relieve the amount of pressure from the first molars of the lower jaw, and to prevent the incisors of the lower jaw infringing so much as they did upon the incisors of the upper jaw. The irritation due to the pressure, no doubt, to some extent, caused the elongation.

Mr. HUNT mentioned a case which his father had watched for more than 40 years, in which the central incisors and the lateral incisors occupied a normal position, but the loss of the molars in each jaw involved a good deal of pressure on the interior surface of the incisors, and they had gradually lost their vertical position, and had become horizontal.

Mr. D. HEPBURN said that cases of this sort were occasionally met with which did not seem to be due to the pressure of the lower teeth upon the upper central incisors. A tooth was often observed to separate and elongate in the manner described, which pressed upon the gum considerably behind the upper central incisors. He did not think that the true cause of the disease had ever been satisfactorily explained, but such cases were very troublesome to deal with.

Mr. HUTCHINSON said that at a previous meeting of the Society he had called attention to a similar case, and his object that night was to obtain, if possible, further information on the subject.

The CHAIRMAN said the subject had long occupied his attention. He thought one of the causes that might be assigned for it was want of use. In all cases where the teeth, to a certain extent, lost an antagonistic pressure, there was a tendency to elongate, and finally to be erupted from their sockets. This was certainly due to a condition that was always taking place, namely, the growth of bone from its vascular or nutrient centres to its surface. This was constantly taking place, but was checked by the molars or bicuspids antagonising against other teeth, which formed external stationary layers of bone. Incisors which did not directly infringe upon other teeth were kept in their place by the peculiar action of cutting or incising the food which was assigned to them, but in the present state of society, when the knife and fork usurped the true office of these teeth, it was rather remarkable to find that the condition did not more frequently exist. He had no doubt that it was greatly on the increase. In cases of this kind he had usually recommended the patients, when engaged in reading or some other avocation, to press the thumb gently, but steadily and firmly, upon the tooth, and if that was persevered in, considerable improvement would be effected.

Mr. HUNT mentioned the case of a young lady, aged 20, who called upon him about twelve months ago. The left central incisor had become elongated to the extent of about the 16th part of an inch. He cut it across with the engine and harmonised it with the rest of the teeth, but in six months the same elongation occurred. The central incisor had become so loose that it had to be removed. When she called a week or two ago the canine was peeping through the gum and occupied the space between the lateral and the right central incisors. In such a case he should like to know whether the canine should be removed or should it be harmonised with the rest of the teeth.

The CHAIRMAN thought that unless the members saw the case, they could scarcely be expected to decide upon the method of treatment.

Mr. TURNER stated that he had received a communication from Mr. Moon relative to a case of mechanical adaptation of an artificial palate and teeth, which he had had under treatment, in conjunction with Mr. Oakley-Coles, and that the patient was in attendance in the other room for the purpose of giving an opportunity to any of the members of inspecting the contrivance.

Messrs. Hepburn, Parkinson, and Vasey were appointed to examine and report upon the case, but owing to the importance of the case and the pressure of time, its consideration was deferred until the next meeting.

Mr. ASHLEY BARRETT then read a paper on the "Decomposition of Dental Pulp the cause of Periodontitis."

The CHAIRMAN said that he was about to read a paper of his own, the subject of which was so much akin to that treated of by Mr. Barrett, that the better plan would be to discuss both papers together.

Mr. COLEMAN then read a paper "On the Treatment of the Dental Pulp when exposed by Disease, and of Dead and Discharging Teeth."

Mr. BARRETT, senior, said that the subject was one of the most interesting that the society could be called upon to deal with, and what surprised him most was that, notwithstanding all the papers that had been read on the subject, very little advance had been made towards the settlement of the question. They seemed to be continually reasoning in a circle. He thought that categorical lists of cases might be drawn up in order that the question might

be finally settled. One point, which seemed to him to be a very important one in deciding the question whether the pulp was living or dead, was that if the tooth was tender on the outside when tapped, the pulp was invariably destroyed. The treatment of freely using an antiseptic when the pulp had been destroyed and putrefaction had set in, was one which they were all, no doubt, agreed upon, as neutralising the effect of decomposition.

Mr. SEWILL thought that the fact of whether the pulp was dead or alive could be pretty well ascertained by unmistakeable signs, one of which was the fact of sensitiveness remaining in the dentine. There were cases recorded, though perhaps doubtful, in which the dentine retained its sensibility after the pulp had lost its vitality, but those cases were rare; but if when the dentine was cut into it was found that it was void of sensitiveness, it might be concluded that the pulp was dead; and if it was sensitive, it might be inferred that the pulp had not lost its vitality. It was impossible to fix any rule for the treatment of such cases, each of which must be dealt with according to the pathological condition of the tooth. The difficulty was to make a diagnosis of a case as it was presented. He could not understand why an escharotic should rationally be applied to a healthy pulp. The practice of surgeons in dealing with healthy wounds was to close them up so as to prevent suppuration, but they never applied in such cases either carbolic acid or the actual cautery. In like manner he could not see why an escharotic could rationally be applied to a healthy pulp. Many of these cases were carried on very well in which the pulp was really dead or was being slowly destroyed by the products of suppuration finding vent round the filling.

Mr. MOON, in answer to a question of Mr. Barrett as to whether pressure of the tooth could always be depended upon as showing that there was periostitis or inflammation, mentioned a case he had recently had of a gentleman of middle age and of good constitution, who was suffering from local irritation of an upper molar tooth. There was a cavity under the gum on the distal surface, and it was difficult to clearly make out with an instrument that the pulp was exposed, and that there was localised chronic inflammation of the pulp at the exposed point. On the buccal surface being pressed, pain was caused which led

to the conclusion that there was a circumscribed patch of inflammation of the periodontine on the surface of one of the buccal roots. He put a carbolic dressing over the point where he imagined the disease was, and flushed some wax into the cavity, drilling a fresh hole through the crown of the tooth, laying bare the pulp, and applied arsenic; when the pulp was destroyed the tenderness on pressure of the tooth at once disappeared. He therefore concluded that it was simple hyperesthesia of the pulp which caused the pain and not the pressure of the tooth tilting the root on the inflamed tissue; but it was probably caused by the cold from the finger touching the exposed pulp.

In answer to the Chairman,

Mr. MOON said that the tooth was painful only when pressed in the direction of the posterior distal corner. The interior pulp chamber was also filled to a great extent with secondary dentine, and the pulp was chiefly present in the posterior distal corner of the pulp chamber. The secondary dentine sealed up the pulp chamber towards the palatine root and the interior of the tooth.

Mr. HUNT asked if Mr. Coleman in his third class of cases, in which death of the pulp had occurred, preferred using arsenious acid as an antiseptic in preference to the ordinary method of removing the pulp?

Mr. TURNER thought that notwithstanding the frequency with which the subject was discussed, it was surrounded with difficulties. Above everything the condition of the patients ought to be considered. He had in his mind's eye a case in which he could not apply anything successfully to a tooth, and yet he felt loath to remove it. In such a case as that, general principles were of no avail, and he had to fall back upon something which might be found useful if long enough applied. In the case of a suppurating tooth pulp in a lower molar, when he could not keep the cavity dry by any means within his power, he found that the only plan he could follow was to adopt the old-fashioned plan of using camphorated spirit or absolute alcohol, dressing the cavity twice a-day until the pulp was got into quite a healthy condition. Another point in connection with this case was, that the pulp was continually soaked in suppurating matter, the canal of the tooth forming a tank in which the matter was held always in

connection with the pulp. A case of this kind required much more frequent dressing than a case where the tooth was inverted, or where the condition was absolutely reversed. In reference to the application of nitric acid, he confessed to be considerably puzzled on the subject. He had for many years used it for the destruction of the nerve, and thought there was nothing approaching it, either for the absence of pain or for quickness and thoroughness. He had also used it for modifying the pain experienced sometimes in making an opening to make the tooth canal sufficiently patent for the application of nitric acid, but he did not approve of applying it to a living tissue. If there was, as was the case with sores, a slough formed after the nitric acid was applied to the tooth pulp, he should like to know what became of the slough, and until that was rationally explained he should always shrink from adopting that method of treatment.

The CHAIRMAN called attention to the fact that the important point, mentioned by Mr. Barrett, of gases escaping after the removal of the softened dentine over a pulp cavity, had not yet been alluded to in the discussion.

Mr. HUTCHINSON alluded to the alarming frequency of alveolar abscess in temporary teeth. In cases of children five or six years of age, the teeth were frequently almost bathed in pus, and if an opening was made by an excavator in the pulp cavity, pus and bubbles of gas were emitted, but that was, to a great extent, explained by the tightening of the muscles of the cheek, because if the finger was pressed on the surrounding gum, the bubbles of gas came up with still greater force. He had frequently removed all the decayed tissue out of the cavity, and then put a cap over it, stopping the tooth, and drilling a hole through the side rather than extracting the temporary molars. He had seen in the course of practice at the Dental Hospital many cases where a frightful amount of inflammation ensued, which arose, he thought, from the wool which dressed the pulp cavity being wetted with carbolic acid. He should like to ask Mr. Barrett whether he preferred using wool perfectly saturated and moist with carbolic acid, or whether he thoroughly dried the carbolic acid so that the wool was simply impregnated with it. Where there was a tolerably certain method of treating teeth with dead pulps, he

thought it the wiser plan to, as far as possible, adhere to it. He believed the best method, in the case of dead pulps, was to leave an exit for discharge, and thus prevent subsequent severe alveolar abscess.

Mr. BARRETT in reply thought that hard and fast rules ought not to be laid down to guide them in their treatment, as every case should be treated according to its merits. He thought the application of wool and carbolic acid might on the outside of the tooth, produce inflammation by blocking the channel of escape for the exit of gas and putrescent nerve, thus causing the socket of the tooth to be injected through the opening of the end of the fang. If it appeared that the best results followed from the application of arsenious acid to a healthy exposed pulp, then that would be a strong ground for the adoption of such a course, but they should be entirely guided by results.

The CHAIRMAN, in reply to Mr. Sewill, said he thought the treatment by nitric acid had its analogy in cases that were treated in surgery generally. The object was to convert an unhealthy suppurating or discharging surface into a healthy granulating and healing one, and that method was very often successful. In answer to Mr. Hunt, he said he preferred using arsenious acid to the removal of the pulp, because however carefully the fangs were cleaned out, if the tooth itself was not treated with some strong anti-septic, a certain putrid substance was left in the mouth. In reply to Mr. Turner's question, as to what became of the slough which was formed by the action of the nitric acid, he was sorry he could not inform him, for when he had removed the oxi-chloride filling from some cases, he found the pulp in a perfectly healthy condition, and certainly not destroyed. He had seen the same condition produced by carbolic acid.

After the thanks of the meeting had been awarded to the readers of the papers and the various speakers, the proceedings terminated.

Correspondence.

We do not hold ourselves responsible for the views expressed by our Correspondents.

The American Academy of Dental Surgery.

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

DEAR SIR,—In the November issue, my name has been mentioned in

connexion with the above. Will you allow me to state that I have yet to learn by what authority this has been done.

I received, some time ago, a letter from Dr. Perine, stating that I had been elected a fellow of the Society, which honour I declined. This is the sum total of my connexion with the matter, and is very different to what would be understood by readers of the article referred to.

Faithfully yours, THOS. FLETCHER.

The Authorship of "Vernon Galbray," and the "Dental Cosmos."

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

DEAR SIR.—The *Dental Cosmos* for November has honoured me by reviewing a book I have taken the liberty of presenting to the public anonymously, and although I cannot but feel flattered by the length of the notice they have presented to their subscribers (more particularly when I remember that this number is freely and *gratuitously* circulated in Great Britain), yet I am disappointed that another should have deprived me of the castigation they intended for the author's shoulders.

The manner in which the reviewer has dwelt upon the "spicy revelations" so "racyly told," cannot but add to the obligation I am under, so that when the book is described as being filled by "a great deal of padding that would hardly do credit to a fourth or fifth-rate novel," I feel sorry that he has neglected to inform us whether he gages his standard of literary ability by American or English estimation, as in this "worn-out country" to reach even a fifth place in praise indeed, when coming from American journalists thoroughly accustomed to criticise and condemn works they have afterwards received with unstinted commendation. To "Vernon Galbray" is added an appendix, and in this appendix a little anecdote is related illustrative of the interest the late Claudio Ash took in keeping up the status of our profession, and many similar anecdotes have come to the author's knowledge. No sooner does the editor of the *Dental Cosmos* see the name of Ash—a name, by the bye, that seems to produce a very similar effect to the red flag in the Spanish arena—than he professes to jump at the conclusion that the book emanates from that well-known firm. I say professes to do so, for if he had given himself but one moment's reflection he must have perceived that the volume in question could not advance *their* interests as dealers in dental materials, but *might* injure their trade with that class the book is written to expose. He does so in language I will not spoil by attempting to alter. It runs thus:—

"As the story concludes, we wonder almost why it should have been written; but on glancing through a short appendix, and particularly at a certain paragraph slyly inserted at the very end, all our astonishment ceases; for this pamphlet, which *professedly* aims at exposing quackery, turns out to be itself a very cunningly-devised advertisement of a well-known dental dépôt. There is an old proverb that says, 'Set a thief to catch a thief.' In this case we might alter the terms, and we shall understand how all the minute details of the Israelitish style of doing business came to be so faithfully pourtrayed."

A more thoroughly unmerited and unfounded charge it is impossible to conceive, and it leaves me no alternative but at once to throw off the incognito I have assumed (much as I desired to retain it), and honestly

declare that Messrs. Ash and Sons had nothing whatever to do with the composition of the volume, and never read a line or knew of its existence until it was delivered to the trade. Since the book was published I have seen many reviews, all, with this one exception, praising the *object* the writer has had in view in its publication ; but I must acknowledge I feel more stimulated to persevere in what I am doing by this one exception than by the praises bestowed by all the others. The *Dental Cosmos* is so loud in its condemnation and goes so far out of its province to traduce an honourable house, that I am inclined to believe the object of the book is distasteful to the editor—although he can find room for nearly two pages of extract—knowing that if read, it is calculated to elicit enquiry and might lower an advertiser in the eyes of the public. “How can a dentist afford to do without a dental journal ?” they ask. We can afford to do without any review, permit me to reply, that so mistakes its calling as to invent motives and suggest any object in the author, but that explicitly stated in the preface, namely, that the book was written to expose fraud and awaken the public to the true character of an advertizing Charlatan. To every reasonable mind it could have no other object, and I therefore without hesitation acknowledge myself its author, and

Your obliged and obedient servant,
7, Montague-place, Russell-square. FELIX WEISS.

SIR,—We shall be obliged if you will publish in your next issue the enclosed letter, which we have sent to the Editor of the “Cosmos,” in answer to the unfounded statements which the writer of the Review of “Vernon Galbray” has made against us at p. 616 of the November issue of that Journal.

Yours obediently,
Broad Street, Golden Square, London. CLAUDIUS ASH & SONS.
Dec. 14th, 1875.

Copy of Letter sent to the Editor of the “Dental Cosmos.”

“TO THE EDITOR OF THE ‘DENTAL COSMOS.’

“SIR,—In the notice of ‘Vernon Galbray,’ signed ‘W.’ in your last number, it is stated that the pamphlet ‘turns out to be itself a cunningly devised advertisement, of a well-known Dental Depôt,’ and the writer avowedly draws this conclusion as he states from ‘a certain paragraph slyly inserted at the very end.’

“As in the paragraph referred to, the name of Claudio Ash is mentioned, we think it right to say that this firm is in no way concerned, either directly or indirectly, with the publication of this pamphlet. Our first knowledge of it was from receiving a copy by book-post, sent to us *anonymously*, and up to Saturday last, the 28th inst., we were in ignorance of its authorship.

“We trust you will do us the justice to insert this in your next issue.

“We are, Sir, yours faithfully,
“November 30th, 1875. CLAUDIUS ASH & SONS.

Obituary.

THOMAS GILL PALMER, of Cheltenham. Obit Nov. 12, 1875.
Æt. 64.

Mr. Palmer was the second son of the late Mr. George Palmer of No. 1, St. James's-street, London, and began his professional career as a pupil of the late Mr. Bromley, of Southampton. He commenced practice for himself in Peterborough, and laid the foundation of the practice which his brother, Mr. James Edwin Palmer, now carries on there.

In the year 1837 he removed to Cheltenham, and continued in practice there until the end of last March, when, by the advice of his medical attendant, he retired, having been in practice for a period extending over forty years.

Mr. Palmer took the Licentiatehip of the Royal College of Surgeons for Dental Surgery on the second examination night after the granting of the Charter, and was also one of those who took great interest in the foundation of the Odontological Society—being on the Council in 1858 and 1859, and Vice-President in 1860, 1861, 1862.

He was also a Freemason of some eminence, being, at the time of his death, Provincial Grand Treasurer for Gloucestershire, an office to which he was annually unanimously elected by the brethren for sixteen consecutive years. In this capacity he worked very hard in collecting subscriptions for the reredos in Gloucester Cathedral, and which was presented to the Dean and Chapter by the Provincial Grand Master (Lord Sherborne) in the name of the Masons of the Province. In recognition of these services he was presented with a handsome testimonial of plate, and his name as Prov. Grand Treasurer, together with those of the Prov. Grand Master, the Deputy Prov. Grand Master, and the Prov. Grand Secretary, is inscribed on a brass tablet affixed to the back of the reredos.

Mr. Palmer was also very active in obtaining subscriptions for the purchase of a parsonage house for the parish of Cheltenham, which was permanently attached to the living, mainly through his exertions, and for which he was presented with a handsome testimonial by the late rector, Dr. Walker.

For many years he enjoyed the most unbroken health, but the excessive hard work and anxiety consequent on

one of the finest of provincial practices, brought on the disease to which he succumbed on the 12th day of November last.

By his own wish, expressed shortly before his death, his remains were taken to London and interred in the family vault at Kensal Green Cemetery. He is succeeded in practice by his eldest son and late partner, Mr. Gascoigne Palmer.

New Inventions.

THE accompanying cuts represent a well arranged lamp for the surgery. It consists of a circular stand $4\frac{1}{2}$ inches in height, a section of the perpendicular part of which is removed for the ready introduction of the spirit lamp. A moveable hot water bath, with an outside pocket for a



mouth mirror, is fitted to the top of the stand, making the total height $6\frac{1}{2}$ inches. The water bath can be removed and a tray, provided with a neat lid and a distinct mica bottom, placed on the top of the stand, thus converting the apparatus into an efficient annealing lamp. The whole has the appearance of being substantially and well made, and being nickel plated it is ornamental as well as useful.

THE DENTAL HOSPITAL OF LONDON.

CASES TREATED FROM NOVEMBER 1ST TO NOVEMBER 30TH, 1875.

Extractions.	Children under 14	...	...	...	865
	Adults	...	...	...	591
Under Nitrous Oxide	...	...	...	...	180
Gold Stoppings	...	...	...	...	191
White Foil ditto	...	...	...	...	18
Plastic ditto	...	...	...	...	231
Irregularities of the Teeth treated surgically and mechanically	...	...	...	...	47
Miscellaneous Cases	...	...	...	...	298
Advice Cases	...	...	...	...	96
					<hr/>
			Total	...	2017

JAMES MERSON, *Dental House Surgeon.*

COMMUNICATIONS, &c., have been received from—

G. Williams, Esq., London.—Thomas Gadde, Esq., London.—T. Fletcher, Esq., Warrington.—James Merson, Esq., London.—Dr. G. W. Field, London.—Ashley Barrett, Esq., London.—Dr. Bogue, New York.—S. S. White, Philadelphia, U.S.A.—Felix Weiss, Esq., London.—C. Ash and Sons, London.—Mordaunt Stevens, Esq., Paris.—Gascoigne Palmer, Esq., Cheltenham.—G. Hockley, Esq., London.—Harry Rose, Esq., London.

The following Publications have been Received:—

The Dental Register.
 Johnston's Dental Miscellany.
 Le Progrès Dentaire.
 Le Progrès Médicale.
 The Dental Cosmos.
 The Pennsylvania Journal of Dental Science.
 The Missouri Dental Journal.
 Deutsche Vierteljahrsschrift.
 Correspondenz Blatt.
 Boston Journal of Chemistry.
 The Dental Advertiser.
 The London Medical Record.

TO CORRESPONDENTS.

ALL communications intended for the Editor should be addressed to the care of Messrs. SMITH, ELDER & Co., 15, Waterloo Place, Pall Mall.

All inquiries respecting Advertisements and Subscriptions should be sent to Mr. GEORGE BUTCHER, 4, Crane Court, Fleet Street, E.C.

THE MONTHLY REVIEW
OR
DENTAL SURGERY.

No. VIII.

JANUARY, 1876.

VOL. IV.

The Present Position of the Dental Profession.

An unexpected element of interest has been introduced into the field of dental politics, in consequence of the recent action of the Council of the Royal College of Surgeons.

The collective wisdom of that Institution has suddenly been compelled to recognise the fact that, in accordance with the provisions of their charter, they must, *nolens volens*, admit women to an examination for the licence in midwifery ; and, further, that those candidates who obtain this qualification have a perfect and indisputable claim to the registration of their names as legal practitioners in this department of medicine. That this change of front on the part of the College will entirely alter the relative position of the opponents and advocates of female practitioners we may reasonably expect, although, as dental surgeons, we need take no present interest in that aspect of the case.

The standing counsel of the College, having clearly stated that any one holding a licence of midwifery without any other qualification can be placed on the Register, the question that naturally arises is—why cannot dental licentiates, receiving their diploma from the same corporation,

enjoy the same privilege. The answer, of course, will be that the Act of Parliament from which the College receives its power to examine candidates for the dental diploma, does not mention dental licentiates in the schedule of those who shall be entitled to register, while it does mention midwifery licentiates as justified in doing so. However, taking into consideration the curriculum through which the dental student is compelled to pass, and that enforced on the student of midwifery, there seems no valid reason why the dental surgeon should occupy an inferior position as compared with the lady who simply obtains a licence to practice midwifery. A single word added to Schedule A. of the Act of 1858 would place the dental licentiates in the possession of the privilege which they so much desire, and enable them to place their names on the Medical Register, and thus afford a distinguishing mark between the qualified and the unqualified practitioner.

Believing, as we do, that prohibitive legislation cannot be obtained to operate against unqualified practitioners, it seems the more desirable that those who go through the ordeal required by the College of Surgeons should enjoy some privileges and legal rights superior to those who have declined or failed to obtain a recognised diploma.

The Odontological Society, representing as it does the whole of the more influential part of the profession, may fairly be looked to as the fitting body to take up this question. We have no other permanent representative Association, and it behoves the members of the Odontological Society to urge upon the Council the necessity of fulfilling the purposes for which it was founded, and do all in their power "to advance the interests of the dental profession."

Advertising. No. 3.

Continuing our researches among those gentlemen who endeavour by outward acts to thrust themselves upon public notice, we come, this month, to that rather numerous body who, in order to achieve their end, avail themselves of the services of the Fourth Estate of the Realm. Not in leading articles, however, nor in paragraphs of news, or general information, is the Press called into action, but rather in those columns—more accessible, if more costly—devoted to trade announcements at so much a line.

It is really astonishing what a large number of persons are anxious to persuade the public what very able dentists they are. We remember reading a work by a French author upon advertising, in which he says that the first time a man sees an advertisement, he does not notice it at all; the second time he faintly observes it; the third, he thinks he saw it before; the fourth, he reads it through; the fifth, he wonders if there's anything in it; the sixth, he asks how much it costs; the seventh, he says, "Damn it—here's that thing again"; and so on till the twentieth time, when he avails himself of it. Apparently the gentlemen we now refer to entertain much the same opinion, and, by repeating their announcements continually, not only hope to make the public believe them, but also—like elderly gentlemen who tell very improbable stories very frequently—at last believe them themselves.

The newspaper dentists, as we may call this class of advertisers, give themselves various titles and qualifications. Thus, out of six advertisements now before us, there are two "Surgeon Dentists," one "The Dentist," one "Member College of Dentists, England," one (a firm) "M.D.," and one "Resident Dentist." None of these individuals, however, appear in the list of holders of dental diplomas in the "Medical Directory," nor can we obtain any information about the "College of Dentists, England," except as a defunct institution. If the British public would look before they leap, would open their eyes before they open their mouths, and would insist upon a more satisfactory qualification than the mere self-made statement of a trade advertisement, it would not only be better for the British public, but also fairer to those dentists who do acquire recognised diplomas. Many of these advertisers, too, hold appointments which we cannot trace—one, to wit, in the

country, announcing himself as "Dentist to the Royal Dispensary, London."

In the matter of style these announcements are well worthy a little study, and we propose to give a few excerpts to show—not only what a power of writing the authors possess (their detractors might call it *cacophes scribendi*) but what vast fields of operation are open to the practitioner!

Most advertisers are desirous to impress the public with the fact that, by their respective "systems," as they are invariably called, the operation of extraction causes no pain. Thus one heads his announcement "perfectly painless dentistry;" another "can guarantee every case he undertakes without the slightest pain;" while a third says, with admirable candour, "teeth extracted painlessly if desired." The phrase, "painless dentistry," however, occurs in three out of four. Some announce how this absence of pain in the operations is obtained, and appeal to the medical papers for confirmatory opinions. On this point, it would be amusing, if it were not almost aggravating, to note how quietly these individuals, as a rule, appropriate nitrous-oxide gas as an invention of their own. It is invariably announced as "our new system," "my painless method," "by royal letters patent," &c., and the reader of half-a-dozen of these advertisements, if he were not aware of the real facts, would fancy that each of the individuals so eloquently describing the new anaesthetic was in reality one of the greatest benefactors of the age; at all events, an extremely scientific man who ought to obtain the universal support of the large body of sufferers with their teeth, for his great discovery of the qualities of nitrous-oxide gas and other anaesthetics.

Advertisements, as a rule, teem with descriptions of artificial teeth and plates. Thus, while one dentist asserts that his "enamelled teeth (supplied while waiting)," are the best, another declares that his "incorrodible mineral teeth" are unequalled, and a third states that his "adamantine artificial teeth, constructed on the atmospheric system," cannot be surpassed. But, as if these varied and enviable differences of make were not enough—the question of fixing follows, and the patient, who has decided the relative merits of "adamantine," "incorrodible," or "atmospheric," is at his wits' end to decide between "gum-coloured india-rubber suction plates," "pure American gold springs," or "a novel and

hitherto untried system by which they are fixed so firmly to the gums, that when once in the mouth, it is almost impossible to move them." Here we must note that there is at all events one man who works by steam—he announces "teeth supplied by other dentists, repaired in a few hours by steam-power."

As in other methods of advertising, there are degrees of excellence, we think we must give the palm for descriptive powers, to the gentleman who claims for his system—

"Perfectly painless manipulation ; facial anatomy faithfully studied and youthful appearance restored, elegance of appearance and naturalness combined with the utmost strength and durability ; mechanical lightness of the greatest attainable degree ; perfect security in the mouth without spring, wire, or ligature ; mastication and articulation equal to one's own natural teeth, there is no difference whatever,"

though perhaps the operators may be considered dangerous rivals, who, without acknowledging the source from which they obtain the eloquent words, adopt the following from the late Mr. Josiah Wedgwood :—

"All works of taste must bear a price in proportion to the skill, taste, time, expense, and risk, attending their invention and manufacture. Those things called dear, are, when justly estimated, the cheapest : they are attended with much less profit to the artist than those which everybody calls cheap. Beautiful forms and compositions are not made by chance, nor can they ever, in any material, be made at small expense. A competition for cheapness, and not for excellence of workmanship, is the most frequent and certain cause of the rapid decay and entire destruction of arts and manufactures."

while the "dentist" who states that "decaying substances contain animal and vegetable substances which animaculæ our tooth-paste completely destroys," may fairly be called "a good third."

If nothing else would suffice to show the public what class of men they are who thus "assume a virtue if they have it not," we should have thought that the curious mistakes that are made would have opened their eyes. For instance, one firm have been "extracating" teeth for very many years, and this is no "printer's error," for though the other wording of the advertisement is frequently changed, the "extraction," like the brook in the well-known song, "goes on for ever," while another individual, ignoring the use of instruments, announces, "teeth extracted by nitrous-oxide gas." Probably this latter may be effected in the same way as the artificial teeth are made that are constructed on the

"atmospheric" system. One more specimen, and we have done. It should be enough, too, for the public, and should not only convince the wavering, but confirm those who have already made up their minds, not to be charmed by the advertiser. It has the usual heading, "Painless Dentistry," and after sundry other attractions, finishes with "The Dental Profession taught for 25*l.*" After this, the announcement of a "good, sound, classical, and commercial education," in a healthy spot, with no extras and no holidays; but with a liberal allowance of pocket-money, for 20*l.* a year, payable quarterly—reads tamely.

The Month.

MR. EDWIN SAUNDERS.

We have much pleasure in publishing at another part of the Review a letter from Mr. Edwin Saunders.

EXTRAX FROM JOSH BILLINGS' "SENTENTIAL FARMER'S ALMANAK FOR 1876."

DISKOUNT.—If yu want to find out the utter weakness of munny just try to hire a dubble tooth to stop akeing.

The happyest time in enny one's life iz the fust 20 minnits after they hav had an akeing tooth jerk'd out.

Dr. PORTER ought to be a contented man when he finds his friends taking such interest in his affairs, as the following paragraph indicates:—

"Married.—Oct. 21st, 1875, Dr. J. M. Porter, of Toledo, O., to Miss Mary Folger, of Massillon, O., at the bride's home. This announcement will be received with pleasure by Dr. P.'s friends, and especially so, since the impression was entertained in some quarters that he was rather opposed to such proceedings, and was inclined to fight it out on another line. May the joys of the happy pair ever flow on, and their happiness brighten throughout life's journey."

The above appears in our contemporary, the *Dental Register*.

THE NEW PRESIDENT OF THE ODONTOLOGICAL SOCIETY.

Mr. Vasey has been elected the President of the Odontological Society for the present year. It is satisfactory to see that most of our Medical contemporaries have announced this election coupled with good wishes for the success of the Society.

Mr. Vasey enters upon his duties at a time when his peculiar qualities will be of infinite service to the profession. Possessing as he does, in a most marked degree, firmness, sagacity, liberality of views, and considerable administrative power, we shall be surprised if his year of office does not very materially affect the position and influence of the Odontological Society of Great Britain.

We have to thank several friends for their approval of the suggestion we made in our last number of an Examination in Arts. We cannot insert all the communications we have received, but we extract the following from the letter of one of our correspondents:—

“I thoroughly approve of your editorial article in this month's *Review*, and regard it as the only sensible suggestion yet made towards a *real* reform in the dental profession. An Examination in Arts would do more than all the Acts of Parliament and Registrations in the world.”

We do not intend to let the matter drop, and shall be glad to hear from those willing to co-operate with us.

THE PATHOLOGICAL SOCIETY.

“An Old Man from the Country,” writing to the *British Medical Journal*, says:—“The early adoption by the Council in their report of your view of the absurdity of limiting its activity to morbid structure, and the necessity of including ‘morbid processes,’ and of cultivating chemical pathology as well as morbid anatomy, is still more hopeful; and when, instead of surgeons and physicians of the highest eminence, and of the most rusty acquaintance with pathology, we have in rapid succession as presidents such gay young pathologists as Murchison, Wilks, Sanderson, Hutchinson, Holmes, and Hulke, we may find the Pathological Society awake to the conviction that it is hopeless to circumscribe pathology in a soup-plate, or to trust for its progress entirely to dry extracts from the museum catalogues of the London hospitals.”

TO THE EDITOR OF THE “MONTHLY REVIEW OF DENTAL SURGERY.”

SIR,—It has so long been the proud distinction of English journalism, and especially of the medical section of it, that it keeps clear of detraction and personalities, that your remarks, as having reference to myself, in your last issue, were read with, to say the least, considerable surprise. Nor should I have felt it necessary to ask you for space to

exculpate myself, were it not that there are many young members of the profession to whom, not being personally known, it might be necessary to give an assurance that I could not lend myself to unprofessional practices, such assurance being, I am glad to know, wholly superfluous to those with whom it has been my privilege to enjoy a close and enduring friendship. My reply to your strictures shall be short and categorical. You, in effect, charge me with having issued a tooth powder, with a view, 1st, to increase my professional reputation, and 2nd, with a view to pecuniary profit, either by direct participation or by way of royalty. Now, apart from the improbability of any one possessed of the slightest literary culture resorting to so vulgar and commonplace an expedient, it is obviously and singularly ill-adapted to the proposed end; and any one who sought to get into high-class practice by such means would find himself grievously disappointed. Far better publish a treatise, or lectures, or read papers at societies, afterwards amplified for separate publication, as these can, by reviews and advertisements, be kept well before the medical and general public, associated with the author's name, and would not unnaturally be regarded as in some sort a guarantee of his proficiency. For some years past, however, it has been an object with me to contract rather than to enlarge the circle of my *clientèle*, and this has led me to turn a deaf ear to the importunities of publishers or the recommendation of friends, more especially as the educational requirements of our profession have been amply provided for by competent hands. With respect to the gross imputation of pecuniary interest in the matter, I declare most emphatically that not only was this never so in any shape or degree, directly or indirectly, but my self-respect was never assailed by any hint or suggestion of such a thing. Whatever has been done in this way has been done as a business exigency on which it has not been thought necessary to consult me, nor even, beyond a certain point, to attend to my remonstrances.

Yours truly, EDWIN SAUNDERS.

The Saunders' Scholarship Fund.

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

SIR,—I beg to enclose for publication the list of subscribers to the above Fund. The array of names furnishes

the most satisfactory testimony of the way in which the valuable services of Mr. Saunders are appreciated by his professional brethren and others who have witnessed his exertions.

I cannot refrain from expressing the unqualified pleasure and gratification it has afforded me to act as Treasurer of this Fund, for I see in it, as I think all must see, an omen of good in the example thus set. I am sanguine enough to hope that it is but the commencement of a series of rich endowments for the encouragement of the alumni of the School and Hospital; indeed, it is impossible to over-estimate the value which attaches to the establishment of the scholarship, and great as is the gratitude of the profession to Mr. Saunders for his exertions and munificence in placing the Hospital in its present conspicuous site, he has rendered a still more valuable service in appropriating the funds raised in testimony of his labours and services to the establishment of the first dental scholarship.

I am, Sir, yours truly,

G. A. IBBETSON,

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Clinical Lecture

Delivered at the National Dental Hospital

By HARRY ROSE, L.D.S.,

DENTAL SURGEON TO THE NATIONAL DENTAL AND METROPOLITAN FREE HOSPITAL
OF LONDON.

In bringing before your notice these few observations in favour of the elevator as an instrument for more general use than it is at present, it is with the belief that those who

cultivate its acquaintance and carefully practise and observe a few simple rules and cautions, will be able to extract teeth and stumps that otherwise they would look upon with a sigh of mortification and regard as hopeless cases ; and, instead of being able at once to give a merciful release to the sufferings of poor humanity, would find it necessary where the forceps are only used, to try again and again to obtain a sufficient hold on the carious and crumbling walls in order to draw the root from its socket, thus giving the patient a well-grounded opportunity of saying, " He had six or seven pulls at my tooth before it came out." Now, when the elevator is used properly this very seldom happens ; for, instead of the pressure and pain, necessarily severe when we have to force the two blades of the forceps between the process and the root, there is only one blade to be looked after and pressed up or down as " the case may be," and then, with a steady turn of the wrist, using the socket and neck of the adjoining tooth as a fulcrum, the broad surface of the elevator is brought uppermost, and with it the root. The elevator that I have brought for your inspection I find very useful for general work, and also for the extraction of lower wisdoms.

For the removal of the stumps of the lower first and second molars, " lowers," when broken or decayed much below the level of the gums, an elevator for the right and left side is necessary, with the extremity bent at nearly right angles to the shaft ; and for the removal of the six upper centrals, when there is only a small portion left in the cavity, or when, from caries, the whole inside of the root has been eaten out and left it like a hollow tube, a straight elevator, with an extremity representing a half-circle, with the cutting edge made quite sharp, and the two lateral points rounded off. With such an instrument one can remove the smallest point that remains ; and I have myself removed the root of an upper canine $\frac{1}{2}$ of an inch in length, at a depth of nearly an inch from the surface of the gum.

I will now proceed to illustrate a few of the cases where an elevator may be used with advantage ; but, before doing so, will mention a few general rules that ought to be observed when proceeding to use this instrument, for in unskilful hands accidents of a very serious nature might be the result.

In the first place, let the edge be keen and sharp, in order

to cut into and take a firm hold of the side of the stump or tooth to be removed.

Secondly, as a rule, stand on the same side of the patient as the tooth to be removed is situated.

Thirdly, when introducing the instrument into the mouth, hold the handle firmly in the palm of the hand and let the fore-finger be carried along the blade to within a quarter of an inch of its extremity.

And, fourthly, always have a guard, in case it should slip by the root coming out suddenly or the patient jerking the head.

Now, suppose we have to remove the right lower *dens sapientia*. We stand on the right side and rather to the back of the patient; the mouth must be as wide open as possible, and the operator puts his left arm round the neck of the patient and introduces his thumb into the mouth and against the lingual wall of the tooth; this will prevent any accident, should the elevator slip or the patient make a sudden movement; in fact, the only damage that can take place, if this rule is strictly followed out, is the point of the instrument running into the operator's thumb or "finger," as the case may be.

Now, having by the action of the palm of the hand and thumb, and the fore-finger acting as a guide, made an entrance between the necks of the teeth, in a direction inwards and downwards until the whole cutting edge will come into play, then, with a steady turn of the wrist, the tooth may be raised from the socket.

I have mentioned that the left thumb should be used as a guard on the right side of the lower jaw.

On the left side the left fore-finger may be conveniently used, and also on the left side of the superior maxilla, and on the right side of the latter the fore or the middle finger is the easiest to apply. These simple precautions are soon learnt, and will stand between the operator and danger when he least expects it.

I need scarcely mention that the use of the elevator has been condemned in the case of the upper wisdoms; but I must plead guilty to having used it in two or three cases, however, only as a last resource, and I thought myself perfectly justified in running the risk of possibly fracturing the tuberosity to allowing the patient to suffer the agonies of tooth-ache. In these cases the precaution was taken of using

a very narrow-bladed elevator, and I did not in either of them experience any difficulty in their removal by this means, nor did any bad results ensue.

For loosening upper and lower bicuspids, especially when they are much decayed and liable to break; for the upper molars, also, when the crown has come away and the edges of the tooth are bevelled down too much to allow of the forceps grasping it, sometimes, to my surprise, the three roots have been extracted quite easily with this instrument after having resisted all attempts with the forceps. It is also especially useful when the patient cannot open the mouth wide enough for the insertion of any other instrument.

I do not think it will be out of place here to draw your attention to the alveolar forceps for the removal of the teeth of the superior maxilla, either when they are much decayed or broken off in the attempt to extract them by other means. As these forceps are only meant to move and loosen the tooth or stumps in its socket but not to grasp and take it away altogether, we may, I think, conveniently look upon them as a species of elevator, and describe them under that heading.

Three pairs of these forceps are necessary. A straight pair for the removal of the upper centrals, canines, and bicuspids, and a right and left pair with the jaws bent at the same angle as ordinary stump forceps for the extraction of the first and second molar teeth.

In these forceps you will notice that one of the blades is represented by a sharp point, whilst the other is like the jaws of an ordinary pair of stumps.

When the two jaws are antagonised, the pointed one should be a trifle longer and strike above the other.

Now let us see the action of a pair of these forceps, and we will begin with the straight ones on a strong upper canine root badly decayed.

The first thing to do is to press the blade well up the posterior wall, taking care to have as much bearing against it as possible; then, with the pointed extremity of the other blade pierce the gum and outer wall of the alveolar process exactly in the centre of the root to be removed, and as high up as you can get it. When this is done, and the point is felt to strike against the tooth, a steady outward pressure is given. What takes place then is this: the root is moved

slightly forwards and at the same time lifted from its socket by the combined action of the two jaws of the forceps, one acting slightly above the other, and as it were forcing the root from its place and attachment, it is then only necessary to take it away with any convenient instrument. It has been said that the operation is more painful and that there is a liability to fracture the outer wall of the alveolus, but I have not found such to be the case, the process is only pierced, and expands sufficiently to allow of the root being moved; I have never seen any injury result from this operation, and as regards being more painful to the patient, such cannot very well be the case, for, as these forceps are specially designed to meet difficult cases, it is to be assumed that anything that relieves the patient soonest from suffering is certainly the most merciful.

For the removal of upper molars, when broken down and the three fangs still undivided, and the tooth has that clear fracture that tells of the previous struggle, how the operator has tried his utmost to move the tooth, how more and more strength has been applied, until at last and almost in a state of desperation he makes the last attempt, and much to his disgust finds the crown of the stubborn member in his forceps, and the roots still in their places, looking as if they were set in rock and defying him.

Now is the time, I say, for the alveolar forceps, with the right or left pair as the case may require; push the blade up the palatine root, then with the pointed extremity pierce the process opposite the middle of the anterior root as high as possible; and, if the operator uses this instrument with boldness, tempered with caution and the due observance of minor details, the tooth is bound to come out, if it was the strongest one that ever grew. In conclusion, I wish it to be understood that I do not for one moment wish to disparage the ordinary stump forceps, but my object is to bring more vividly before you the uses that the instruments named in this lecture can be applied to; so that when a difficulty presents itself you may have at your command more ways than one of encountering and overcoming it; thereby raising yourselves in the estimation of your patients, and thus placing the only true barriers, knowledge and skill, between yourselves and the unscrupulous men who at the present time cannot be prevented from boldly calling themselves Surgeon Dentists.

Notes of Six Cases of Congenital Deformity of the Palate Treated Mechanically.

By T. WILSON HOGUE, D.M.D. Harvard.

No. 1. Miss S—, aged 27 years, was a patient of the late Dr. T. B. Hitchcock, of Boston, U.S.A., at whose request I undertook the case when at Harvard University. Both hard and soft palates were fissured, but the speech was tolerably distinct. In January, 1871, a rubber velum was supplied with a gold retaining plate, the muscles of the soft palate being used to raise and depress the artificial substitute. Twelve months afterwards I heard that her speech was not very much improved; but from the first she always said that the artificial palate was a great assistance to her, as it kept her from feeling fatigued whilst conversing.

No. 2. In June, 1871, Miss S—, aged 14 years, was sent to me by Dr. J. Matthews Duncan, of Edinburgh, to have an artificial palate adapted. I found the cleft involved the soft palate only, reaching forwards to the posterior margin of the hard, and her speech was very indistinct. The artificial substitute, which was inserted on the 15th of July, was of soft rubber, held in position by a gold retaining plate provided with a hinge to allow the muscles of the palate to elevate and lower the rubber velum. About a year afterwards the improvement in speech was so encouraging that she took a few lessons from a teacher of elocution with a view to perfect her articulation of certain sounds. I have heard that she was considerably benefitted by them, and that her speech is not only improved but is still improving.

No. 3. About the end of October, 1871, Miss F—, aged 19 years, consulted me. There was entire fissure of both hard and soft palates. She had been operated upon for harelip many years previously, but the lip was so short and stiff that I feared her articulation from this cause alone would never be very good. Her speech was exceedingly indistinct. The rubber velum, which was adjusted on November 30th, was formed so as to be under the control of the soft palate, and was held in position by a gold plate. I wrote to her a few days ago, and in her reply she says, "I am glad to have an opportunity of letting you know that the palate has been a great comfort to me and has helped my speech very much."

No. 4. Mr. W—, aged 18 years, was sent to me in

November, 1872, by Mr. Annandale. On examination I found that there was scarcely any soft palate at all, and that the hard was partially cleft. There was too little tissue to admit of an operation being performed with any reasonable hope of success. In this case the muscles of the soft palate could be made of no assistance. The artificial substitute, which was finished on December 13th, consisted of a gold plate with a large soft rubber curtain. I saw him about six months after, and improvement was noticeable in his articulation, but as he went to Australia and had the type metal moulds sent out to him I have been unable to trace the case any further.

No. 5. Miss M——, aged 13 years, was sent to me in December, 1872, by Mr. Annandale. No fissure of the roof of the mouth existed, but the soft palate was abnormally short. The speech was indistinct and the voice had the same unpleasant sound as in cases of fissured palate. Patient had consulted Sir William Fergusson, who thought that as she grew older her speech would improve. Being, however, at school, where the indistinctness of her articulation proved very inconvenient, it was desirable to try some remedy at once. On January 23rd, 1873, the palate was inserted, the retaining plate of which was provided with a delicate gold spring so bent as to press gently against the rubber velum which was fan-shaped. This kept it in close contact with the velum palate and also allowed it to have considerable motion. The improvement in speech has only been slight.

No. 6. This case occurred in Dr. Miller's practice, and was that of an infant a week old, which had a large fissure of both hard and soft palates complicated with double hare-lip. When seen by me it was in a very feeble and exhausted condition apparently from want of nourishment. A rubber palate (one of the rubbers of Case No. 2) was inserted and kept in position by passing a ligature through the rubber and fissure and tying it round the inter-maxillary bone in front. With this aid the infant took nourishment from a feeding-bottle very nicely, but was never able to suck the breast, probably because the mother had very short nipples. The little patient never rallied, however, and sank from exhaustion in a day or two. Another palate for this case was prepared and attached to the nozzle of a Maw's feeding-bottle, but it was only used once or twice.

The impressions for these cases were taken with plaster

of Paris and the palates were all adapted on Dr. Norman W. Kingsley's principle. Narrow plates of hard platinized gold were used to retain the vela, and thus a small portion only of the hard palate was covered. Some of the rubber vela were, after being worn for a considerable period, slightly altered in form to more fully meet the requirements of the case; the necessity for this can only be determined by time. The moulds were altered by flowing a little soft solder with a blow-pipe where wanted and scraping away the corresponding portion of the other half, or after cutting and soldering one half casting a new second.

In these cases I found the difficulty was not so much to adapt an appliance that could be worn with comfort as to get it carefully modified so that it improved the articulation. These are all the cases I have yet undertaken wholly myself, although, when with Dr. Kingsley, of New York, I assisted in several.

Stourville, Bournemouth.

Alveolar Abscess.

By MORDAUNT STEVENS, M.R.C.S., L.D.S., M.D., D.D.S., Paris.

If I am not mistaken, we are all searching together for a rapid and easy method of curing alveolar abscesses; it takes so long to open up and disinfect pulp cavities, cure the abscess, and replace the extracted nerve by carefully filling the roots to their very apices that, for the sake of our patients, to say nothing of ourselves, we ought to endeavour by patient experimentation to arrive at such a desirable result. As far as I can see, we are no nearer the mark than we were ten years ago. We have tried creosote, carbolic acid, tannin, oxy. chl. of zinc, salicylic acid, &c., and succeeded with all these agents but only after careful and laborious manipulations. I notice that some gentlemen have found a solution of the problem, they cannot unravel the Gordian knot—so they propose the Alexandrian method. “We cannot cure alveolar abscesses *rapidly*, so we will . . . let them go on running.” A vent-hole is carefully drilled for the purpose, and the gases and other putrescent animal matter allowed to escape in the mouth. The tooth no longer troubles the patient, but his friends carefully avoid his vicinity and no wonder.

I would, so far as I am concerned, a hundred times rather have the tooth out than allow this ancient operation to be revived for my sake, turning my mouth into a common sewer. The plan proposed by Mr. Coleman may also be objected to. This gentleman proposes putting arsenious acid into the pulp cavity and filling immediately; but to cure an alveolar abscess so rapidly we must not only disinfect the putrescent material but *we must occlude the terminal opening of the roots*. Arsenious acid does not do this, nor does any other antiseptic used merely as an antiseptic. I must confess, although I find it very easy to criticise, that if called upon to suggest a rapid and easy cure for alveolar abscesses I could not propose one, although I have studied this subject with special attention and made numerous careful experiments to accomplish this object.

When a fistulous opening exists on the gum we can (particularly when we have to treat a single-rooted tooth) apply the dam, remove the dead nerve, soak the nerve cavity for half-an-hour with carbolic acid or some other antiseptic, fill the root with gold wire, and the cavity of decay with non-adhesive foil, all in one sitting; but when no fistulous opening exists I confess I cannot cure an abscess under five sittings (as I do not like perforating the alveolus through the gum); and, for the sake of veracity, I must add that not only have I not found a rapid method of treatment for these affections, but I am equally distant from having found an *easy* one. What we require is a preparation which, being injected in its liquid state into the pulp cavity, will disinfect whatever *débris* of the dead nerve we have not been able to remove, and being drawn by capillary attraction up the nerve cavities will there solidify. I have tried for months, nay years, to find this preparation, and have signally failed.

Oxychloride of zinc, however liquid, will not do this, nor will it, when mixed with creosote, carbolic acid, salicylic acid, or chloride of lime. I have tried everything that could be thought of without success.

We have to enlarge the nerve cavities, clean them thoroughly, and carry the filling up to the end of the root to-day as we did five years and ten years ago.

All hail to the man who will find a rapid and easy cure for alveolar abscess, but alas! as the song says, "It has not happened yet."

On Methods of Soothing Pain produced by Dental Caries.

BY DR. E. MAGITOT.

PARIS, 7th Nov., 1875.

MR. EDITOR.—You published in your number for the 30th of October last a short note by Doctor Lardier, relative to the employment of collodion for soothing pain produced by dental caries. In that note our honourable *confrère* told us that having tested the insufficiency of different means proposed—those which I have formulated, as well as others—he had recourse to this agent, which has procured him great success in many cases.

I am far from calling in question these facts. Indeed, collodion has long been used, and it may be suitable in certain circumstances. These circumstances are always so special that, on the other hand, I can state cases where the application of collodion to dental caries has been really fatal. In one of these, quite recently, a single dressing of collodion provoked an explosion of violent character, followed by phlegmon of the face and a rather extended necrosis of the upper jaw. Surely, if Dr. Lardier had met with a case of this nature his confidence in collodion would be much shaken.

In fact the choice and application of therapeutic means depends essentially, as is well known, on the exact of knowledge the case to which they may be applied. Dental caries has various forms, diverse symptoms; and a remedy which may suit one form of the disease is absolutely wrong for another. Any medicaments recommended for the alleviation of pain in caries, those that I have indicated, as well as others, as collodion, any of these ought not to be considered applicable and useful in general. It is with regret that I have sometimes found in certain medical publications one of my formulas reproduced under the title, "Treatment for Dental Caries." A therapeutic mixture no more constitutes the treatment of caries than a blister represents that of pneumonia; this treatment is for such a form or such a symptom of a certain affection, and not for a morbid entity. These are truly common failures in modern therapeutics.

If Dr. Lardier had taken the trouble to make known at what period of the disease and against what kind of pain he had employed collodion with success, he would have rendered a certain service to practitioners, who often meet with

accidents of this kind. This determination would be easy, even *a posteriori*; but we would adhere to generalities, and remark, above all, that the therapeutic indications of dental caries are numerous and distinct, against the element of pain opiates and anaesthetics are occasionally employed. In certain cases occlusion alone brings temporary calm, and it is in this condition we think that collodion is useful, consequently, in the course of the second period, and at the commencement of the third, dangerous. If there is inflammation therapeutics again vary. In case of denudation of the pulp, we must have recourse to astringents and caustics. Complications of caries are themselves very numerous, and require appropriate treatment.

What we can, nevertheless, affirm is, that in almost all cases the relief from pain in caries may be rapidly obtained; that the radical and complete cure of the patient is possible, but that would be according to the therapeutic means established, on the diagnosis differing according to the varieties, periods, and complications of the lesion.

The question, as may be seen, is sufficiently complex, and cannot be treated of within the limits of a letter. The remarks that we have made have for their end only a warning to practitioners against the danger of falling, with respect to dental caries, into a blind empiricism in according a constant therapeutic action to a means which should be used for a particular case, to a certain symptom, and not that is to say, in a multiple pathological state.

Believe me to be, &c.,

L'Union Médicale.

DR. E. MAGIROT.

Congenital Large-celled Alveolar Sarcoma.

By JOHN STEVENSON, M.B., Edinburgh.

The following case is remarkable on account of the congenital occurrence of a large sarcomatous tumour of a rare anatomical type, presenting physical characteristics which at first resembled another form of disease.

The patient was a baby aged about fourteen days, when first seen by me. To all appearance the child was a healthy one, and pretty well nourished. There was situated on the

right side of the neck and face a swelling most prominent behind the angle of the lower jaw, and extending under the chin, but not crossing the middle line. Manipulation of the tumour gave the impression of several hard glandular enlargements corresponding in situation to the right parotid, submaxillary, and sublingual glands. On looking into the cavity of the mouth, the tongue was observed to be pushed up towards the roof of the mouth, and to the opposite side (that is to the left) by a sublingual tumour about the size of a walnut extending behind the frænum, and on its opposite side for about a quarter of an inch. The growth was elastic and moveable up and down, but did not feel like a cyst. A small incision over its interior surface caused a little thin clear fluid to be projected from it, and a gelatinous-looking body to protrude through the wound. The mother stated that the enlargement on the side of the neck and in the mouth was observed when the child was born, and that, in consequence of the latter, it had been unable to suck, and she had been obliged to feed it with a spoon.

Treatment.—The mother was ordered to rub in a piece of the size of a pea of the following ointment every night:—

B Unguenti iodi, P.B., $\frac{3}{ss}$; unguenti hydrarg. $\frac{3}{j}$; adipis $\frac{3}{ss}$.
Two grains of potassium iodide were ordered to be taken twice a day.

The case was looked upon as one of myxoma causing mechanical obstruction of the ducts of the salivary glands from external pressure, thus converting the glands for the time into retention-cysts; but against this theory were the facts that the enlargements corresponding in position to the salivary glands of the right side were rather more resistent on palpation than a retention-cyst of such origin; that although the ductus Stenonis was not pressed upon by the sublingual tumour, the enlargement in the situation of the parotid gland was as large as those in the situations of the other salivary glands. Enucleation was supposed to be out of the question in consequence of the tender age of the child. A seton was passed through the growth of the mouth, and pulled backwards and forwards daily. After the treatment had been continued for four days, the swelling on the side of the neck was observed to be perceptibly smaller, but that inside the mouth was perhaps a little larger, as it seemed to extend further to the opposite side of the frænum linguæ. The mother was told to continue

the ointment; and three-grain doses of iodide of potassium were prescribed. It was thought advisable to take out the seton, as the waste caused by suppuration seemed to be small in proportion to the rapidity of growth, which it was supposed the irritant action of the seton on the tissue might tend to increase.

The child died at the age of three weeks, when permission to examine the tumour was asked and given, and the following additional history elicited. When Mrs. S., the mother, was four or five months gone in pregnancy, she went to the Sunderland Infirmary to visit a cousin of her husband, who was reported to be dangerously ill with tumour in the womb. Mrs. S. says she got a fright, and felt very much put about. She also states she has had twelve children besides this one; the longest lived died at the age of eighteen months (cause unknown). The remaining ones were either premature, or only survived a week or two. This child seemed to die of asphyxia, as it took food greedily, and could swallow till the last.

Necropsy, seven hours after death. The body was spare, but not markedly emaciated. Rigor mortis was well pronounced, but there was no great *post-mortem* lividity. On the right side of the neck, extending from behind and in front of the ear, along the lower margin of the lower jaw beyond the middle line for a short distance, was a large rounded tumour, over which the skin appeared natural. Its vertical sectional outline would be what, in the language of modern pathology, is distinguished as a tuber. It was elastic, and softest where it approached the middle line of the neck, and about the size of a small foetal skull at the full time. It was distinctly lobulated and movable to a small extent. In the mouth under the tongue, the tumour could be seen pushing that organ upwards and backwards, and to the opposite side. The little finger passed over the dorsum, could not reach the epiglottis on account of its size. It projected beyond the frenum on the left side. Passing down behind the body of the lower jaw, it formed a marked prominence in the intramaxillary region, which could be felt to move down when pressure was made inside the mouth. The morbid growth could be traced along the lateral aspect of the tongue to its root. A T-shaped incision was made over it, and the skin and superficial fascia dissected up. On exposure, the substance of the growth appeared soft and

somewhat translucent or greyish white, apparently enclosed in a thin fibrous capsule, and easily separable from the super-jacent fatty tissue. Its deep relations were not defined, as the parents requested that no more should be done to the body than was necessary to determine the nature of the disease. When the growth was cut into, it was found to have undergone cystic degeneration in its central parts to a considerable extent, leaving as the products of retrogressive change several cysts, differing in size from one another. Some contained caseous matter resembling pus; some bloody and amber-coloured serum; and one was filled with what resembled blood; one or two cysts were as large as a walnut. The caseous matter was mostly found in the smaller cysts, and, in the smallest, resembled in consistence soft cheese.

Microscopical Examination.—The tumour was hardened and several sections made, some of which were stained with carminate of ammonia and examined. Minute shreds were also teased with fine needles. It was ascertained that the structural elements were combined in the way described by Rindfleisch ("Pathological Histology") as characteristic of large-celled alveolar sarcoma. The cells were of two sizes: the smaller, spindle-shaped and very like the cells of spindle-celled sarcoma, formed a network, in the meshes of which were contained groups of larger round or nearly round cells, with large prominent nuclei, which readily took on the carmine stain; with the cellular elements ran very fine filaments or fibres of imperfectly developed connective tissue, to which the cells were very strongly adherent. Many of the cysts contained true pusselements, others appeared to have resulted from colloid metamorphosis.

Can this have been a case of sarcomatous diathesis; that is, one where there was a tendency of the connective tissue series to the development of sarcomatous new formation? and was this latent tendency roused into activity during intra-uterine life by a maternal impression?—*British Medical Journal.*

Practical Communications.

By ALEXANDER SCHELLER, Warsaw.

PARTIAL ALVEOLAR NECROSIS AND REGENERATION.

A patient, of about 40 years of age, of weakly constitution, and traces of insufficient nourishment, came to me by the

advice of her doctor, to have three of her front teeth removed. They were the upper teeth of the left side, from the middle incisor to the bicuspid; and, judging from their appearance, quite sound. The patient suffered frequently from alveolar abscesses, but could not say near which tooth they generally appeared. The last abscess had been emptied some days ago. On examination, the following appearance presented itself—the gum was intact, and without any scar; the abscess had therefore emptied itself within the edge of the gum, otherwise the gum was slightly hypertrophied, but very little swelled. There was no pus to be seen. All three teeth, especially the bicuspid, were very loose. On touching the teeth it was seen that the whole front part of the alveolar plate was loose, and the teeth easily moved up and down.

The teeth, as I have remarked, being quite sound, I was strongly against extraction, and I convinced the patient, notwithstanding the advice of her doctor, that it would be for her advantage to let them remain. The treatment I commenced with a strong horizontal cut, by which the gum over the three alveoli, was divided to the bone. I placed in the wound as well as I could a pad of lint. The wound was cleansed daily and painted with tincture of myrrh and iodine. The patient was advised to take exercise in the open air and partake of a generous diet. As she had very little appetite, I ordered a preparation of quinine and iodide of potassium to strengthen her. Towards the end of the second week, I removed a sequestrum which surrounded the front alveolar edge of the canine and lateral incisor. The probe struck upon the two bared fangs and upon the rough edge of the jaw; the bone appeared otherwise to be intact. The teeth were somewhat firmer; very little pus.

Strangely enough, this sequestrum, as well as those removed later, had the appearance of a healthy fragment of bone, the lamellæ usually quite porous in necrosed portions of bone, were almost intact. The spongiosa appeared still full of marrow and not in the least weakened. There must have been the least possible suppuration, and this must have proceeded from the insufficient nourishment mentioned above. I continued the same treatment, and told the patient to come and see me once a week. Unfortunately the patient had an attack of intermittent fever, and was unable to leave the house. As I do not willingly visit out of

my house, I left the treatment entirely in the hands of the assistant, with the understanding that the wound was to be kept cleaned open with lint, and to let me know at once should anything unusual happen. In the course of a fortnight he informed me that in introducing the lint he thought he felt a piece of loose bone. I therefore visited the patient, and removed a sequestrum which stretched from the above-mentioned as far as the middle of the incisor on the right side. The wound was now treated in the usual manner, only that I substituted a solution of caustic in the place of the iodine, and touched the edges of the wound, which were covered with growths. Healing took place gradually, and in consequence of the fever, superior nourishment was given.

In the course of the two next months the failing portions of bone were replaced, only the front surface of the fang of the lateral incisor remained rough, and made no attempts to cover itself. I then ordered it to be painted every three days with a solution of iodine in carbolic acid, and had the pleasure when I again visited the patient a fortnight later, of seeing the fang covered with healthy granulations. In a short time the process of healing was accomplished.

VIERTELJAHRSSCHRIFT.

DEPOSIT OF LIME IN THE PULP, AND CONSEQUENT IRRITABLE CONDITION OF THE DENTINE.

It is a generally-known fact that from irritability of the nerve centres or nerves, pain is not generally felt in the irritated place, but at the extreme ends of the nerve filaments. How much any disturbance in the pulp of a tooth influences the extreme anastomoses in the dentine, the following case shows :—

A patient, of syphilitic appearance, who had taken more grains of mercury than he had hairs on his head, had for six months (according to his doctor), suffered from violent facial neuralgia, which, after months of useless treatment by his doctor (as so often happens), was cured by the ordinary death of a diseased pulp. Having become knowing by experience, this time, after enduring violent pain on the opposite side of the face for a few days, he came to me instead of going to his doctor. The most minute investigation of the remaining molars on the left side gave no positive result, and

I almost thought that the patient had come to the wrong person, when I changed my opinion through using cold water. On syringing the only left upper molar, the patient screamed out, evidently in very severe pain. When I touched the neck of the tooth under the gum, with the probe, the patient complained of extreme sensitiveness. Although so much pain seemed strange to me, I believed it to be in connection with the ordinary so-called Dentinitis (Chase) and ordered the usual remedies which I have found useful, that is to say, I painted the neck of the tooth with a solution of chloride of zinc and then a coating of collodion to protect it from outer irritation. When the skin so formed came off, I renewed both medicaments. After the patient had followed my directions with the greatest patience for a week, he visited me again to complain of their uselessness. I then trephined the tooth, and applied arsenic paste to the pulp canal; this made my patient so uneasy that he went away after an hour, but returned the following day complaining always of pain. As the patient was obliged to travel that day, he begged me to extract the tooth, and as I felt anxious to examine it, I acceded to his wish. The pain ceased immediately, and the gentleman told me later that he felt himself the happiest man on earth when the tooth was out. I divided the tooth, and as I squeezed the pulp between blotting-paper, I felt several hard bodies the size of a grain of sand, one as large as a grain of millet. Whether these were a deposit of lime or osteodentine I cannot say, as I am no microscopist.

VIERTELJAHRSSCHRIFT.

New York.

[*From our Own Correspondent.*]

NEW YORK, DEC. 14, 1875.

DEAR MR. EDITOR,—As some new things have been passing in dental circles here, I will spend a few moments in writing such of them down as occur to me.

In the first place, the New York Odontological Society has just held another meeting, similar to the one held last year about this time.

The Society and its guests, to the number of about 150,

gathered at the house of Dr. W. H. Dwinelle, on Monday evening last, when papers were read by Drs. Shepard and Hawes, of Boston, and one from Mr. Beers, of Montreal. After these came short addresses from Drs. Hamilton and Marion Sims, both well-known men in the medical world, and then a supper, such as Dr. Dwinelle knows so well how to get up. The next morning the Society met in the parlours of a church, and in three sessions, morning, afternoon, and evening, succeeded in carrying out the programme herewith enclosed, presenting at one meeting material enough for three good meetings, eleven papers in all, of which five at least were notable additions to dental literature.

The gentlemen who presented papers to the Society this year were new names there, none of those whose papers appeared last year being on the programme this time, though several were present. At the close of the evening session on Tuesday, all the gentlemen present were invited to a collation at a neighbouring hotel (the Ashland House), where, quietly seated around the supper-table, this meeting was brought to an end. Among the remarkable papers that were read was one on "Necrosis and its antecedents," by Dr. Wm. H. Atkinson, who has before now been designated as the "incurable." He used in this paper nearly the same language as other mortals, and so succeeded in making himself understood, and elicited the warmest praise for his effort. Dr. Palmer, of Syracuse, brought up the electrical theory to account for some of the phenomena of dental decay, and it must be said of him that, if he has not succeeded in explaining them, no one else has, thus far; and it may be well to look into his theory pretty carefully before it is rejected. I do not undertake to give any abstract of the papers, as they are all to be published in a volume soon, when such portions will be copied as to you may seem good.

The meeting was a fine success on the whole, and shows what a little steady effort can accomplish. The Society has, I believe, kept the same men at the helm year after year until now, it is regarded with very general favour everywhere, its meetings are the most full of interest and value, and its transactions are published far and wide, through its arrangements with the publishers, which are such that very soon after its meetings are held, and before the interest in

them has died away, its transactions begin to appear in the journals.

On the discussion over the paper of Mr. C. Spence Bate, Dr. J. Foster Flagg, of Philadelphia, made a very striking statement. He said that some years ago the statement was made that creosote was the best solvent of arsenious acid. He caused some to be triturated two or three hours daily for some time, then put it in a close bottle and let it stand six months,—and it was fearfully hard work to keep his hands off that bottle for six whole months. At the end of that time he drew off with a siphon the superabundant creosote, and had it tested for arsenic by all of the best chemists in Philadelphia, and they all reported none in it.

Dr. Flagg then took 1-25th of a grain of arsenic, and applied it to the pulp of a tooth, on some cotton. After a day he took it out, saved it carefully, and applied the same cotton to another tooth, then to a third and a fourth up to the tenth. All the pulps were devitalised with equal facility, and all were removed painlessly and put upon a bit of paper, and when all ten had been got together, they were together tested for arsenic, but none was found. The same bit of cotton that had served to devitilise all these pulps, was then used to kill a frog, and after he was dead, he was thrown into a heap of other dead frogs, and left some weeks. The frog killed with arsenic was entirely preserved from decay, although in direct contact with the others which became putrid. Thus much on the question, Does arsenic produce periostitis from being used to devitilise the tooth pulp?

Some amusement has been caused here by the editorial in the *Monthly Review* on the subject of "Advertising," which gave rather a sharp rub to the so-called American Academy of Dental Surgery—Dr. Perine, President. This Society, I understand, has been called together to take action on the subject of changing its name!! Don't say anything more about them, or you may discourage them. A young man in one of the dental laboratories here, informed me that this was the Dental Students' Society of New York! I see that Dr. McQuillen, on page 639 of the December number of the *Cosmos*, is reported to have made remarks at the Association about your correspondent. Ah! well, poor dear; he evidently doesn't know anything about editorial work. Oh no! forgotten it all, maybe. Well, no matter,

I'll forgive him ; and, with all due deference, I venture to think your readers in Europe and America can stand the truth, and so can *we*, unless it touches our own dear selves, and then we are apt to show it. I enclose a description of the dental dinner of last Tuesday, and so close my letter for this time.

An Englishman with the New York Odontological Society.

We have received an interesting letter from a correspondent now in America, containing an account of the meetings of the New York Odontological Society on the 20th and 21st ults. As this may probably be interesting to many of our readers, we take the following particulars from our correspondent's communication, merely premising that the writer is a member of the profession, well qualified to form a good opinion on what he saw and heard :—

The meeting of the 20th was held at the house of Dr. Dwinelle, No. 27 West Thirty-fourth-street, at 8.30 p.m. The rooms were large, well lighted, and well filled, for although there are only some twenty members, the invited guests were so numerous that the numbers present were 153. After a cordial welcome from the host, business began. The evening seems to have been entirely taken up with a discussion upon six year old molars, Dr. Shepard asserting they had a tendency when taken out to drive bicuspids back.

Dr. Hawes urged the cleaning of teeth at night and rubbing dry chalk in the interstices, and remarked that decay did not go on during the day, but at night when all parts were at large.

The evening was brought to a close with a cold collation, to which our correspondent says they all did ample justice.

There was a heavy agenda for the 21st, when the meeting was held at the Presbyterian Church Parlours, Fourth Avenue, at 9 o'clock. There were no less than eight papers on the list, three of which bore names well-known here—Mr. Spence Bate, Mr. Charles Tomes, and Mr. Fletcher.

Referring to the first-named of these, Mr. Spence Bate, "On the Antiseptic Treatment of the Dental Pulp and Pulp Cavity," the writer says, "I think he has done some small

harm in creating a wrong impression on men's minds here with regard to the practice of leaving pulp cavities of dead teeth unfilled. He relates a case of a lateral stopped with gold, periostitis occurring a few days after treatment. The tooth had to be taken out, when a bristle of a tooth-brush was found extending through foramen ad apux, which of course speaks for itself."

He thinks, on the whole, the meeting compared decidedly favourably with those at home. There was a friendly feeling throughout, and the tone was both pleasant and genial. The agenda was printed on a very neatly got up card, which could be imitated to advantage by our English Society.

Odontological Society of Great Britain.

The annual meeting of this society was held on Monday evening, the 10th inst., Alfred Coleman, Esq., vice-president, in the chair.

After the confirmation of the minutes, the ballot was opened.

The following Members were elected as Officers and Councillors for the year 1876:—

President, Charles Vasey, Esq.

Vice-Presidents (resident): Samuel Cartwright, Esq., John W. Elliott, Esq., Edwin Saunders, Esq. (Non-resident): T. R. M. English, Esq. (Birmingham), G. W. Buchanan, Esq. (Glasgow), Daniel Corbett, Esq. (Dublin). Treasurer: James Parkinson, Esq. Librarian: Thomas A. Rogers, Esq. Curator: C. S. Tomes, Esq. Honorary Secretaries: Henry E. Sewill, Esq. (Council), J. Smith Turner, Esq. (Society), Oakley Coles, Esq. (for Foreign Correspondence). Councillors (resident): G. A. Ibbetson, Esq., Henry Moon, Esq., W. G. Ranger, Esq., Thomas Edgellow, Esq., Henry I. Barrett, Esq., Alfred Coleman, Esq., Charles West, Esq., E. B. Randell, Esq., F. G. Bridgman, Esq. (Non-resident): G. W. Smith, Esq. (Manchester), Frank Petty, Esq. (Reading), J. E. Rose, Esq. (Liverpool), C. H. Bromley, Esq. (Southampton), S. Amos Kirby, Esq. (Bedford), J. Dennant, Esq. (Brighton.)

The Treasurer's report, read by Mr. PARKINSON, showed that the total receipts of the year amounted to £418 4s. 2d.

and the disbursements to £364 15s. 3d. He stated that the number of members was—Resident, 93; non-resident, 157; corresponding, 22; and honorary, 27. Five members had died during the year, and seven had retired from the society. New members elected: Resident, 7 non-resident, 8; honorary, 2; corresponding, 1.

The CHAIRMAN said the librarian informed him that there had been some increase of the books borrowed, showing that the library was on the whole more appreciated. The curator of the museum, in his report, alluded to the numerous contributions which had been from time to time recorded, and also to certain valuable specimens which had been purchased.

Mr. MOON then gave some details concerning the interesting case brought before the society at the last meeting, when the patient attended and was examined by three gentlemen deputed for that purpose.

Mr. C. VASEY had much pleasure in substantiating all that Mr. Moon had said with regard to this case. He had never seen a case of such extensive loss of material, so thoroughly, so efficiently, and so perfectly restored. It was one which threw credit and honour upon their work. The surgeon could restore to the lame the power of walking; the aural surgeon might confer the benefit of hearing, and the ophthalmic surgeon the benefit of sight; and on this occasion it was literally the dentist restoring voice to the dumb.

Mr. OAKLEY COLES explained some of the details in the manipulation of the rubber pad used in this case. It was made in the ordinary way, in the first instance, of wax and gutta percha, moulded in plaster. After trying at first type-metal, he succeeded in getting the best moulds by means of zinc, as he obtained the hardest surface, most perfect polish, and sharpest joints for articulation between the two halves by making them of that metal. The undercut was obtained simply by core casting, and the whole surface thoroughly polished by pumice powder, burnished and afterwards polished with a soft brush at the lathe. The pad was vulcanised six hours, and the one in wear was certainly very soft and velvety on the surface. The chief novelty in the treatment was the fact that the pad was made entirely distinct from the gold plate, taking the place of a water-bed, to prevent any possible friction. If the pad was fixed to the plate, then, with every movement of the jaw, there was a certain amount of

friction between the pad and the remains of the upper jaw. Being detached from the plate, any movement produced friction between the plate and the pad, and left the contact between the pad and the jaw perfect and unmoved.

In reply to Mr. Vasey,

Mr. MOON said he did not try the ordinary swivels, but used the moveable swivels devised by Mr. Henry Rogers, as they made it easier to get the piece into the mouth.

Mr. SEWILL inquired why Stent's composition was used instead of plaster of Paris in taking the models.

Mr. OAKLEY COLES said it was important that a material should be used which would exercise sufficient pressure to restore the front part of the mouth to its natural contour, and that could not be done by means of plaster, which would simply have gone up into the space and have given a perfect impression of the mouth, with the lip in a depressed condition. Using Stent's composition, they obtained a perfect impression of the hard tissue, and, at the same time, the pressure necessarily exerted pressed forward the lip, and so gave something approximating to the natural contour of that feature.

Mr. C. J. Fox brought forward a new articulating frame, invented by Mr. Davidson. Although apparently complicated, it was found practically to be very simple and ingenious.

Mr. DAVIDSON explained the construction of the frame, for which he claimed certain practical advantages.

Mr. TURNER read a paper forwarded by Mr. Fletcher.

The following is an abstract:—

“The Tube-packing Test for Amalgama.” One objection raised to this test is that, in a circular cavity with perfect sides, wedging is possible, such as cannot be done in irregular cavities in the mouth. This is undoubtedly a mistake; wedging is only possible when either the wedge or cavity is elastic. When the plug is of the consistency of hard putty, without a trace of elasticity, wedging is simply impossible under any conditions. Further than this, I find experimentally that there is no difference in results in different forms of cavity, provided equal care is taken in each case.

Certain failures I could not account for in any way by any known test, as the results differed most seriously with the same samples in the same mouth.

When I devised the wet-packing test these failures were at once explained, as the alloy proved to be one which had not the power of retaining its form in a cavity to which moisture had access, provided the walls were not absolutely dry at the time of packing. Further experi-

ment has proved that this peculiarity exists in many other alloys to a serious extent.

Now I hold that the proof of this fault in plastic alloys, and also the discovery of means to prevent it, is owing to the use of the packing test alone, and that no other known test is sufficient to show what I am certain is the cause of most, if not all, of the failures with amalgams. When we compare the results of packing in cavities with wet sides with the results seen in the mouth, the perfect resemblance between the two is most striking; the raised plug and the parted margins so commonly seen being exactly reproduced. That this property is totally distinct from shrinkage is very easy to prove, as the tube test shows beyond a shadow of doubt that it occurs only in the presence of moisture, and that the parting of the edges is accompanied by a rise in their level.

When we compare the *apparent shrinkage* in some alloys caused by moisture interference with the *real shrinkage* of the worst alloys known, the latter sinks into insignificance, and it is evident, if comparative tests are any use at all, that under favourable conditions a better plug, as regards adaptation, can be made with an alloy with considerable shrinkage than with an alloy which fails to retain its form.

We have here a proof that the specific gravity test alone is not reliable, as it does not show the most important property, and it is hard to see by what other than the tube test the cause of the lifting of amalgam plugs could have been discovered.

It is hard to see why an opinion should have been expressed at a recent meeting, that the tube-packing test should be abandoned, as there is at present no other test which will give the same information. Under any circumstances it cannot be abandoned by makers, as it is the only known one which can be applied as a guide in melting and discarding imperfect samples, which constantly appear in the manufacture of all alloys, however simple their composition.

The CHAIRMAN said with regard to the paper just read, he was struck with the fact of the porosity of one of their best amalgams (as regards durability) when properly packed, viz., the compound of mercury and copper. The question arose how far a small amount of porosity interfered with the durability of a filling; and again, whether the tests brought forward were tests of the permanence and durability of the filling themselves. However, they were very much indebted to Mr. Fletcher for a very interesting communication.

Mr. SEWILL pointed out that Mr. Fletcher omitted to state whether he used Diatoric or ordinary ink, because if it was ink having solid particles in suspension, it was extremely difficult to make it pass through a fissure unless the fissure was wide, and a test of that kind was valueless. He also demurred to the statement that a perfect filling could be made in a wet cavity.

Mr. TURNER said he believed it was Mr. Fletcher's

opinion that ink composed of water with colouring matter floating in it, and not in solution, was a sufficient test, and a fair representation of the saliva. He did not pretend to argue with Mr. Fletcher on matters chemical, but it seemed to him that the colouring matter, if only held in suspension, might be filtered, and still the fluid find its way between the walls of the cavity and the amalgam used. The more complex ink was the one which would most efficiently test any amalgam. In the saliva they not only had colouring matter floating, but a variety of substances, and certainly they had an acidity which was an enemy, not only to the amalgam, but to the teeth. He did not quite understand Mr. Fletcher's reference to Sullivan's stopping. It was a most useful article, and could be used sometimes where it would be almost hopeless to use any other stopping, and cases were continually coming under their notice in which it had been used thirty or forty years ago and was still existing. Why it should be so serviceable and yet be of this porous character he was at a loss to tell.

The CHAIRMAN then proceeded to lay before the Society an account of the work it had accomplished during the past year. Its most important object was the monthly gathering for the communication of new facts and the mutual interchange of ideas. The number of papers read during the year was ten, large in proportion to the number of their meetings, and had been eminently practical, assisting the practitioner not merely in his daily work, but enabling him more largely to extend the sphere of his usefulness to his patients. The first paper was by Dr. Rottenstein, of Paris, on "Dentifrices." Dr. Woodman came next with a paper "On the Occasional Occurrence of Symptoms of Poisoning, probably Dependent upon the Colouring Matter of Pink and Red Vulcanite." The discussion on that occasion went to show that such cases were extremely rare, but, as it was a subject of considerable importance, a committee was appointed to investigate and report upon any cases brought under its notice. At present no report had been made, no cases having been met with. Messrs. Ewbank and Charles Tomes favoured the Society with a record of experiments upon water-tight fillings with substances usually employed for filling teeth, and under conditions similar to those of the mouth. Then came a short paper upon an ingenious means for sustaining plates by atmospheric pressure, devised by

an American *confrère*, Mr. Hall, and termed "Hall's Suction Disc," followed on the same evening by a paper referring to the practice of "Dental Surgery in Egypt," by Mr. Waller and himself. He believed that, if a series of such papers could be obtained from different parts of the world, they would go far to clear their knowledge upon many difficult and abstruse questions. The subject of alloys had been very ably dealt with by Mr. Makins, and Mr. Hutchinson contributed a valuable paper entitled, "The Nerve Pulp in Life and Death." This subject was appropriately followed up at the next meeting by two papers, by Mr. A. W. F. Barrett and by himself. The last paper of the year was that to which they had just listened, from Mr. Fletcher. The casual communications had been especially interesting, and had dealt with a variety of subjects. A large number of valuable instruments and appliances had been brought under notice, and a large number of interesting cases had also been recorded. He congratulated the Society on the flourishing condition of its finances, its library, and museum. After referring in feeling terms to the death of their late President, Mr. Edwin Seacombe, he said he considered the chief event of the year was their having been presided over by a President of such scientific reputation and such great moral and social qualities as the gentleman whose period of office, elected President for the second time, terminated that night. (Applause.) Mr. Tomes connected them with everything good connected with their profession that had taken place during the last twenty-five or thirty years. Their best thanks were due to him for having once more shown his devotedness to their cause at personal self-sacrifice in again undertaking the office of President.

Mr. FLETCHER proposed a vote of thanks to the retiring President for his devotion to their cause, and more especially for his great urbanity and disinterestedness.

Mr. RYMER (of Croydon) seconded the resolution, bearing a high testimony to the part taken by Mr. Tomes in the fusion brought about between the two dental societies.

The resolution was carried by acclamation.

A vote of thanks having been accorded to the officers and council of the Society, the proceedings terminated.

The New York Odontological Society.

The New York Odontological Society met in the parlour connected with the Sunday-school room of Dr. Crosby's Church on Fourth-avenue. The President, Dr. A. L. Northrup, was in the chair, the Vice-President, Dr. Benjamin Lord, sitting beside him, and Drs. Jarvie and Carr officiated as Secretaries. There were present from other localities, in addition to those mentioned in yesterday's issue as having attended the evening session, Dr. Sage, of Bridgeport; Dr. Allen, of Newburg; Dr. Palmer, of Syracuse; Drs. Ham and Codman, of Boston; Dr. Jones, of Northampton; Drs. Darby, Huey, Guilford, and McQuillen, of Philadelphia; and Dr. McManus, of Hartford. Of New York dentists there were more than a hundred present. The assemblage was so large that the extensive parlour would not hold all, and nearly one-half seated themselves in the pews of the Sunday-school room, the sliding doors between being thrown open to make the communication as thorough as possible. Business commenced punctually at nine o'clock with the reading of the minutes, after which three papers were read, one on "Facial Neuralgia" by Dr. C. N. Pierce; the second on "Antiseptic Treatment of Dental Pulp and Pulp Cavity," by Dr. C. Spence Bate; and the third on "Necrosis," by Dr. William H. Atkinson. On the first two subjects there was very considerable discussion, not from any decided difference of opinion, but because very many of the gentlemen present had observed interesting facts in connection with the subjects. With regard to facial neuralgia the curious circumstance was elicited that in a vast preponderance of cases the cause of trouble was a diseased tooth. Illustration after illustration was given on this point, and anecdotes were related of surgeons who had gravely prescribed for patients all manner of tonic and alterative remedies, and had been astonished at the baffling character of the malady, with a final result of a visit to a dentist and subsequent relief. The second subject concerned local applications to prevent inflammation and swelling of the face. These two discussions occupied so much time that, when Dr. Dexter had finished the reading of Dr. Atkinson's paper on "Necrosis," the President announced that the time had come for adjournment.

At two o'clock the dentists re-assembled, though in reduced numbers, and proceedings were resumed by the reading of a paper on the "Chemistry of Dental Caries," by Dr. Palmer, of Syracuse. In this address he placed himself upon an electrical basis, and ascribed the changes of teeth as proceeding from electro-capillary forces resulting from the action of acids upon alkalies. It was a long and able paper, and necessarily called forth much discussion. One dental brother objected to the phrase electro-capillary, which he thought ought rather to be magneto-capillary, but the sense of the assembly evidently was that mere nomenclature was a secondary consideration, the first point being to see how far the facts were in accordance with the reader's theory. Dr. Flagg, of Philadelphia, was of opinion that there was much to corroborate him, and made a special hit upon the frequency of dead teeth, killed by gold filling, and the comparative rarity of such bad results from gutta percha filling, the one being a metal and liable to electric disturbance, the other a negative substance and not liable. It would not do,

he declared, to put the blame upon the filler, for he had in his office several bottles filled with teeth upon which the best operators in Philadelphia had practised their powers, and yet the teeth had died completely in two years. He was waiting to see when he should find similar results from gutta percha filling, which all first-class dentists had despised, or applauded merely as a good temporary substitute, and he had not found a single one. Some surgeons had talked of vital forces in connection with teeth. That was a door comparatively closed to him, for he did not know what those vital forces were, or how they operated, but it did seem to him as if the door of electricity was a little bit open. Dr. Kingsley said that possibly there was a constitutional idiosyncrasy, and that gutta percha fillings would be suitable for some and unsuitable for others. Dr. Buckingham, of Philadelphia, could not agree that all changes were the result of electricity. He did not doubt that electricity was always present where matter suffered a change, but did not accept it as the changing force, the *causa*. There were other forces besides electricity—for example, capillary forces. It could hardly be said that it was electricity which sent the blood coursing through the veins and circulating through the tissues. Electricity, or polarisation, was competent to build up crystals, but not to make cells of living organisms and give them assimilating powers. He strongly objected to Huxley's views of protoplasm, that it might either grow to a thistle or to a man. And he concluded by declaring, as there were many varieties of matter, so there were many forces. The writer of the article, Dr. Falmer, then rose to point out that certainly he had never declared electricity to be the only force, and that he did not think so. This would probably have closed the discussion had not Dr. Buckingham's reference to Huxley roused the ire of Dr. Atkinson, who rose in a tremor of scientific indignation and accused his dental brother of having misused the word protoplasm, and having given to it the meaning of the word germ, which it ought not to have, and never could have in any sense in which Huxley used it. Then he diverged to a consideration of the Huxley creed of protoplastic appetency, and sat down after a brilliant explanation of the potentiality of matter. The Chairman, finding the subject exhausted, reminded the assembly that nothing had been said about necrosis, and declared it now ready for discussion. But nobody being willing to discuss it, Dr. Atkinson spoke concerning his own paper himself, making heavy strictures upon surgeons generally for their treatment of and dogmas concerning inflammation, and this in spite of many warning raps from the President's pencil at the unparliamentary and somewhat unkind mention of a cognate profession. The next paper was then read, on "Pressure and Contact as Causes of Dental Decay," by Dr. Henry D. Chase, and immediately afterward the next one, on the "Influence of Vital Force in resisting Dental Decay," was read also by the author, Dr. M. S. Dean. The assembly then adjourned.

The evening session was commenced at 7.30 with discussion of the two previous papers. This was followed by a paper on "Practical Lessons from Comparative Odontology," by Dr. Charles S. Tomea, and by another on the "Practical Results obtained with Plastic Fillings as compared with Theoretic Tests," by Dr. Thomas Fletcher. An animated discussion was held on the latter, and the meeting adjourned.—*American Paper.*

Correspondence.

We do not hold ourselves responsible for the views expressed by our Correspondents.

DENTAL REFORM.

SIR.—I have watched, with much interest, the various expressions of opinion which have appeared in the journal in regard to the above question. I have long desired to see the mechanical so far separated from the surgical department of dentistry, that those practising the latter should not be, as many are now, literally the manufacturers of surgical instruments or appliances ; and that there should be in all cases, as there are now in exceptional, surgeon-dentists and mechanical dentists. But I quite agree with those of your correspondents who have pointed out that it requires more than a mere mechanical training to prepare so delicate a portion of the human frame as the mouth for, and to adapt to it, a foreign material ; and I moreover think it would be a source of distress to many possessed of refined and sensitive feelings were they to be informed that, for the future, they must seek aid for the supply of nature's deficiencies at the hands of persons holding no professional status. Whilst, therefore, I would maintain that it is quite as professional for the dental surgeon to prepare the mouth for and adapt it to receive an artificial denture or obturator as it is for a general surgeon—and especially an orthopædic surgeon—to see that a surgical instrument or appliance is properly constructed and adjusted, I must express the opinion that the former must greatly alter his arrangements in regard to fees charged for mechanical work if he insist upon assuming the professional status of the latter. As the matter now stands, it is the common practice to name a specified sum for a specified work, such as a set or partial set of teeth. The system is a very unjust one, though quite as often so to the dentist as it is to the patient, whose fees for mechanical work are but very moderate, if the number of visits and cost of the work be considered ; but some patients give very little trouble, and are consequently charged too much ; other patients give a great deal of trouble, and are charged too little ; the strictly professional proceeding would be to charge for the visits, and, when the matter is completed,

hand over to the patient the bill of the mechanical dentist. If dental reform is to be carried out, and I sincerely hope such is in progress, let it be a thorough one; so that all who hereafter use the prefix of surgeon may be fully entitled to the status and the honour that name conveys.

I am, &c., ALFRED COLEMAN.

19 Savile-row, W., December 9th, 1875.

[*To the Editor of the "British Medical Journal."*]

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

SIR,—I have been very much interested by your articles on advertisers, and am looking forward to seeing one before long upon newspaper advertisements, one or two of which I enclose.

It has occurred to me that these gentlemen might make their announcements very much more effective by clothing them in rhyme. Poetical advertisements are now, as a rule, chiefly used by tailors and barbers, but this is surely no reason why dentists in a large advertising way should not keep their own poet as well as any one else.

"Who cropped your crown?
Professor Frederick Brown,"

Would read very well as

"Who stopped your tooth?
Why Mr. Jones, forsooth.

and

"Trust your hair
To Baxter's care,
3d."

would be very attractive as

"Trust your jaw
To Tompkins' claw,
1s."

I mentioned the subject to our local poet, who has just sent me in the enclosed, as a specimen of his skill—"a taste of his quality," as you said last month—and says he shall be willing to supply any quantity at so much a dozen:—

"There was a young man of Redruth,
Who was terribly bored by a tooth
Till at last in despair
He resolved to repair
To a dentist—the friend of his youth.

"So he ran to the friend of his youth,
Who quickly extracted the tooth ;
And so skilful was he,
And so small was his fee,
That he charmed that young man of Redruth."

Yours faithfully,

Redruth, January 2nd, 1876.

DENS SAPIENTIA.

Legal Intelligence.

MAKING A SET OF TEETH WITHOUT AN ORDER.—At the Godalming County Court, on Thursday, Eskell *v.* Anderson was an action in which the plaintiff, a dentist, of Hanover Square, London, but who attends by his representative on Wednesday in every week to practice his profession in Guildford, sued the defendant, a lady, who, in partnership with her sister, carries on a boarding-school in Waterden Road, Guildford, to recover £14, the balance of an account for a set of teeth made and supplied to order.—Mr. Geach appeared for the plaintiff; Mr. Fulton, solicitor, instructed by a London solicitor, appeared for the defendant.—On the part of plaintiff, it was stated that the teeth were supplied at the stipulated price of £15. When the order was given, £1 was paid as a deposit and hence the amount sued for. A set of teeth was ordered at the same time by the defendant's sister, at a cost of £25. When the order was given £3 was paid on the two orders, being £2 for the defendant's sister and £1 for herself. The money was paid as a deposit, but when the set of teeth was nearly completed the defendant wrote and said she would have none made.—For the defence it was contended that the order was never given. A model of the defendant's mouth had been taken, but she distinctly said she would not have any teeth made until she saw how her sister's acted. When she found her sister's teeth pained her so much, she wrote and declined to have any made.—This was distinctly sworn to both by the defendant and her sister, and his Honor, without calling on the learned gentlemen engaged in the case, found for the defendant.—*The West Sussex Gazette.*

Notes from the Journals.

DENTAL NEURALGIA.—Dr. J. Sawyer says, in the *Practitioner*, “I have rarely found gelseminum fail to give decided and lasting relief in cases of neuralgic pains in the face and jaws, associated with carious teeth. I have usually given fifteen minimis of the tincture every six hours.”

PERUVIAN BARK IN SORE THROAT.—Dr. Holden recommends the following formula, as exceedingly efficacious in diphtheritic scarlatina, and other forms of sore throat:—

B. <i>Corticis Peruviana</i> flav.	...	...	3 <i>ij.</i>
<i>Acacia</i> pulv.	:	:	3 <i>l.</i>
Sacch. alb.	:	:	3 <i>ss. M.</i>

S. Mix one-half of this powder in a table-spoonful of cream, and apply frequently with a camel's-hair brush.

THERAPEUTIC ACTION OF CHLORATE OF POTASH.

In a long paper devoted to this subject, M. Isembert observes that it is now evident that the chlorate is without action on true gangrene of the mouth, and that Hunt committed an error of diagnosis in confounding noma with certain forms of fetid ulcers—membranous stomatitis—for which it is acknowledged on all hands to be almost a specific. But what, he asks, is its mode of action? It is a topical agent, which, when absorbed, reappears in the saliva, and therefore is continuous in its action; when ineffective, enough has not been given, and a cure can be effected by applying it directly in a concentrated form. In mercurial stomatitis the chlorate is extremely serviceable, though less certain. The explanation of this is, that every foreign body which is eliminated by a gland modifies its secretion, and this modification may perhaps be an exaltation of the vital properties of the secreting organ which carries off with it the morbid state. The chlorate does not appear to have been found useful in scurvy. It is very serviceable in the simple glandular or ulcerated forms of angina, though it cannot be regarded as a specific. In croup it has not realised the hopes that were at first formed in respect to it: it has proved valuable as a topical agent in different kinds of chronic coryza, and M. Laborde has recently pointed out its usefulness as an expectorant and as a succadaneum to kermes in chronic bronchitis and broncho-pneumonia when on the decline. It certainly has not the contra-stimulant properties of the antimonials, but it facilitates the excretion of bronchial mucus, and it has the

advantage of stimulating the appetite. Atonic ulceration of the skin, phagedenic ulcers, and fetid wounds, are often favourably modified by the external application of the chlorate in concentrated solution, but its action appears to be inferior to that of iodoform in this respect.—(*Gazette Médicale de Paris*, Oct. 23, 1875.)

THE PHYSIOLOGICAL ACTION OF ARSENIC.

A student named Kessel undertook a series of researches in the Physiological Institute at Berlin, upon the influence exerted by cautiously increased, but ultimately fatal, doses of arsenic, upon the economy of dogs, but having to leave Berlin before they were completed, Gährtgens continued them, and gives the following as the results obtained:—The occasion of the research was the remarkable parallelism which exists between fever (pyrexia?), diabetes, and poisoning with phosphorus in regard to the occurrence of remarkable increase in the disintegration of tissue albumen, in Voit's sense of the word. Poisoning by phosphorus is characterised in addition by the deposition of fat in the tissues of various organs, which also appears to occur after the use of arsenic and antimony. From an anatomical and pathological point of view the action of arsenic must be regarded as analogous to that of phosphorus, to which it presents so many points of analogy. If the ordinary view be accepted, that the fat is formed from the contents of the cells (of the peptic, hepatic, renal, canalicular cells) the question arises, what becomes of the nitrogenous constituents of these cells? To afford an answer to this question a dog, weighing 44 lbs., was insufficiently fed for fifteen days and then completely deprived of food, whilst arseniate of soda was administered by means of a sound. The experiment was continued for ten days, and careful examination was made of the urine and faeces. The result of this showed that the albuminous substances did probably undergo disintegration and that the nitrogen was eliminated in the form of urea which underwent considerable increase.—(*Centralblatt f. d. Med. Wiss.* No. 32, 1875.)

GELAEMIUM SEMPERVIRENS AS AN ANTI-NEURALGIC.

Dr. A. Jurasz, of Heidelberg, having had his attention drawn to the effects of this drug in cases of neuralgic toothache, as detailed by Wickham Legg, and Sawyer, proceeded to try it in various cases of neuralgia, and corroborates the results obtained by those observers. The tincture was usually employed in doses of from five to twenty drops. The first

case was that of a man who suffered from neuralgia of the first branch of the fifth nerve on the right side. Quinine was given internally, and veratrine ointment was applied externally, without benefit. The action of the gelsemium was here excellent, the patient being perfectly and permanently freed from his pain in the course of three days, five drops only being given every eight hours. A second case was one of brachial neuralgia, a third of severe sciatica, and a fourth and fifth of trigeminal neuralgia, in all of which the results were satisfactory. On the other hand, however, it failed in a case of hemicrania of long duration, and in two cases of muscular rheumatism.—(*Ibid.* No. 35, 1875.)

Gelsemium. Dr. O. Berger (*Centralblatt*, No. 44, 1875), on the other hand, states that the results of experiments with this drug on patients, both the tincture and extract being used, have been in the highest degree unsatisfactory. The greater number of the patients were the victims of trigeminal neuralgia, partly of peripheral and partly of centric origin, whilst others suffered from neuralgic pains in different parts of the body, and insomnia. He quite admits that the remedy possesses considerable activity, various unpleasant symptoms having been experienced by the patient, as vertigo, diplopia, ptosis, difficulty of moving the tongue, stiffness and trembling of the hands, numbness of the fingers, chilliness and general malaise, vomiting, and last, though not least, dyspepsia. Even when the doses did not exceed seven grains of the extract.

Notices and New Inventions.

We have much pleasure in calling the attention of the profession to a new and remarkable amalgam. Mr. W. Charles Davis, of Bristol, the inventor of this "Malleable and Quick-setting Gold Amalgam," has just furnished us with a sample, and from the few experiments we have carried out with it, we are satisfied that, so far as we can now judge, it will be a highly valuable material for filling carious teeth.

The property of malleability is its special characteristic. A flat pellet, one-eighth of an inch in thickness, we beat

out to three times its original diameter; it could then be cut with a knife, and a soft tough shaving produced—resembling a shaving from a piece of lead similarly treated. A cavity in a tooth was filled and the surface burnished; a part of the plug was deeply cut away at one edge, exposing the wall of the cavity. By malleting with smooth points we successfully wrought over the more central part of the plug, and filled up the cavity we had made, and then burnished the surface of the filling.

In amalgamating the alloy, it is recommended to add an excess of mercury over the quantity generally used with ordinary amalgams, so that the mixture may be quite thin; nevertheless, the plug becomes sufficiently hard in one minute to bear burnishing, and in a little time longer its malleability and toughness become more marked.

In virtue of these properties it can be inserted into a tooth and malleted in a few minutes, or at the lapse of a few days after it has been placed in the cavity. Thus, any shrinkage which takes place can be overcome. But whether any shrinkage and alteration in the shape of the plug which has been malleted takes place, we have not yet had an opportunity of ascertaining.

So far as our experience with this amalgam has gone, we can recommend it to the profession with considerable confidence; desiring, however, to be deliberate before we give an absolute judgment upon a preparation that requires time, experience, and observation for its properties and utility to be known.

SPÉCIALITÉ SHERRY.—We have been much pleased with the sample of the Spécialité Sherry submitted to us. It is a light, palatable wine with an agreeable taste, and contains

just sufficient stimulating power to render it very useful in those cases where a patient requires a restorative. We can cordially recommend it to the profession, and predict for it a large sale.

THE DENTAL SURGEONS ATTACHED TO THE
VARIOUS HOSPITALS OF LONDON ATTEND AS
FOLLOWS:—

Dental Hospital of London	-	-	-	Daily, 9 a.m.
National Dental Hospital	-	-	-	Daily, 9 a.m.
Charing Cross	-	-	-	Mon., Wed., Fri., 9 a.m.
*German	-	-	-	Thur., 10 a.m.
*Great Northern	-	-	-	Wed., 2 p.m.
Guy's	-	-	-	Thur., 12 noon.
King's College	-	-	-	Tues., Fri., 10 a.m.
London	-	-	-	Tues., 9 a.m.
Middlesex	-	-	-	Daily, 9 a.m.
St. Bartholomew's	-	-	-	—
St. George's	-	-	-	Tues., Sat., 9 a.m.
St. Mary's	-	-	-	Wed., Sat., 9 a.m.
St. Thomas's	-	-	-	Tues., Fri., 10 a.m.
University College	-	-	-	Wed., 10.30 a.m.
*West London	-	-	-	Tues., Fri., 9.30 a.m.
Westminster	-	-	-	Wed., Sat., 9.15 a.m.

Hospitals marked * have no school attached to them.

PATHOLOGY IN THE LION.

According to Mr. Lund, of Manchester, in an address recently published, a very curious pathological condition occurs in the lion under certain circumstances. It appears that it was observed in the collec-

tion of animals of the Zoological Society of London, that a certain lioness, always breeding with the same lion, gave birth on several occasions to lion cubs with cleft palates, and the probable cause was for some time in doubt, such deformity being rare among the lower animals. At last it was noted that this animal, in common with the other carnivora, was fed on lean meat cut clear from the bone, and it seemed probable that the deficiency of growth was due to the absence of bone-food. The idea was acted upon the next time this lioness was in cub. She was fed freely with meat still attached to the bone, and bones were left in the cage to be gnawed by her at pleasure. The result was that in the next litter all the cubs were perfect, and the ordinary defect was removed by this modification of the diet.—*Medical Examiner.*

DENTAL HOSPITAL OF LONDON.

CASES TREATED FROM DECEMBER 1ST TO DECEMBER 31ST, 1875.

Extractions.	Children under 14	-	-	-	-	-	253
	Adults	-	-	-	-	-	430
Under Nitrous Oxide	-	-	-	-	-	-	139
Gold Stoppings	-	-	-	-	-	-	149
White Foil ditto	-	-	-	-	-	-	36
Plastic ditto	-	-	-	-	-	-	186
Irregularities of the Teeth treated surgically and mechanically	-	-	-	-	-	-	52
Miscellaneous Cases	-	-	-	-	-	-	150
Advice Cases	-	-	-	-	-	-	99
						Total	1494

JAMES MEESON, *Dental House Surgeon.*

TO CORRESPONDENTS.

ALL communications intended for the Editor should be addressed to the care of Messrs. SMITH, ELDER, & Co., 15 Waterloo Place, Pall Mall. All inquiries respecting Advertisements and Subscriptions should be sent to Mr. GEORGE BUTCHER, 4 Crane Court, Fleet Street, E.C.

THE MONTHLY REVIEW
OR
DENTAL SURGERY.

No. IX.

FEBRUARY, 1876.

VOL. IV.

The Functions of the Odontological Society.

A general impression prevails that the Odontological Society of Great Britain, by virtue of its constitution, cannot take political action on behalf of the Dental profession. How this feeling has originated it is difficult to say, unless it is to be assigned to the "rest and be thankful" spirit which has been the chief characteristic of the Society during the last ten years. Recent events have demonstrated the fact to every unprejudiced mind that the Representative Body of Dental Surgeons in this country can neither ignore nor reject its political responsibilities. The Royal Medical and Chirurgical Society, as well as the Obstetrical Society, have never hesitated to take political action whenever it has been necessary in the interests of its Fellows. Why the Odontological Society should by its inaction have repudiated similar responsibilities we are at a loss to understand. The members of the Dental profession have from time to time looked in vain to a Corporation that would guard their professional interests and advance their political position.

The large meeting in Manchester, and the small meeting in George-street, Hanover-square, cannot have surprised those who have carefully studied the "signs of the times."

Political progress and social position must always advance with material prosperity, and the action of the two extreme parties to which we have alluded show at once the weakness and the strength of the great body of Dental Surgeons in the present day. On the one hand, the holders of high-class surgical qualifications, and on the other hand, the representatives of numerical strength, must inevitably fail in their endeavours after reform so long as they remain in antagonism to each other. If each party would but have the courage to be candid, we should find that the Members and Fellows of the College of Surgeons felt the want of numerical strength whilst the large majority of unqualified dentists aimed at the possession of some legal status. With interests so apparently opposed, yet really in unison, it is clear that unanimity can only be arrived at by mutual concessions. A profession that is but now emerging from surgery on the one side and self-estimated competency on the other, cannot afford to be divided in its councils. If the present position of Dental Surgery has one feature more strongly marked than another, it is that the old order of things is passing away and giving place to a new one. It would be but a thankless task to point out the shortcomings of the two movements towards Dental Reform that have been recently inaugurated; we would rather indicate the manner in which all sections of the profession may act together without any sacrifice, either of independence or self-respect. Maintaining, as we do, the political character of the Odontological Society, we would urge upon that body the desirability of holding a Conference of the entire Dental Profession, and taking counsel even from those who are not officially connected with the Society, as to what measures can be adopted to promote the professional and poli-

tical position of Dental Surgeons. The Annual Dental Dinner that is to take place next month will attract a large number of practitioners to London from all parts of the country, and thus afford a convenient opportunity for holding the Conference we have suggested. Such a meeting, called together under the auspices of the Odontological Society, would command both attention and respect, whilst the opportunity for the free interchange of opinion would most effectually break down class feeling and party-prejudice. The President of our Society has commenced his year of office with a declaration, showing at once intelligent independence and thoughtful consideration for the views of those who differ from him. By presiding in his official capacity over a thoroughly National Conference, he would render his year of office memorable in the history of dentistry, and earn the lasting gratitude of those who desire the progressive development of Dental Surgery.

The Odontological Society cannot repudiate its political responsibilities ; the President, we are well assured, will not shrink from carrying out the onerous duties of his office ; it remains with the members to be seen whether they are prepared to use the Society for its legitimate purpose, or remain quiescent in a selfish and inglorious apathy.

The New Dispensation of Dentistry.

The historian has always dwelt with peculiar interest on the obscure origin of great movements. The starting-point of many a noble faith has been humble in the extreme, and poetry has exemplified this truth in many a well-known line. Dentistry is to be elevated by a new faith—a faith revealed in the neighbourhood of Hanover-square, and—tell it not

in Gath neither publish it on the walls of Ascalon—to be devoutly proclaimed in Lincoln's Inn Fields.

It appears that on a recent occasion twelve highly-respected dentists—Members of the Royal College of Surgeons—assembled together at night—not for fear of the Jews—but to partake of a repast very unlike the ordinary apostolic food. In spite, however, of the Clicquot and the Lafite, “the feast of reason and the flow of soul” resulted in a new revelation. It was discovered that it was urgently necessary to breathe a new life into the science of dentistry. This was to be done by establishing a Dental Society, the portals of which could only be passed by those invoking the consecrated hieroglyphs, M.R.C.S. The unselfishness and simplicity of those founding new faiths has always greatly assisted in the promulgation of their doctrines, and we are not surprised to hear that the devotees have determined to abandon the large profits of mechanical dentistry to surgical-cutlers, or at least to the authors of “the gentle treatment.” We do not know whether the “spiritual” and highly-qualified dentists will still condescend to enlighten the Odontological Society with the learning acquired through their connection with the Royal College of Surgeons, but should so many stars of the first magnitude be removed from the firmament of ordinary dentistry, the Odontological Society will be totally eclipsed, and there will certainly be a “darkness over the land” of vulgar tooth-extractors. At the recent meeting one of the younger apostles, who, we believe, according to the motto of his College, is both “holy and wise,” was restrained with great difficulty from resigning a lucrative lectureship where a large number of dentists are trained for the L.D.S. Like the humble fishermen of old, such was his faith that he was determined to abandon his nets—to

retire from his Professorial Chair—rather than abet the present heathen practices.

The new doctrines are already spreading, and, like the Puritans of old, with a view of “ purging themselves,” we learn that several well-known dentists, possessing the dental diploma of the College of Surgeons, have determined to renounce all private practice until their skill in all the ordinary branches of surgery has been approved by the worthy examiners in Lincoln’s Inn Fields. One dentist possessing the L.D.S., whose practical work is generally considered to be excellent, but whose age is nearly 60, has determined to enter immediately as a student at the nearest hospital. As it will be four years before he can obtain the Membership of the College of Surgeons, we think that the apostles should at least receive him into their communion *pro tem.* We feel sure that the important meeting in George-street will not prove an illustration of “ Much ado about nothing,” and we shall look forward with great interest to the Transactions of the learned Society so recently established.

The ‘Medical Examiner’ on Dental Reform.

The history of specialism in medicine illustrates the successive decisions of the various parts of the body-corporate, and the subsequent evolution of these parts, with more or less perfection. As in most cases of natural development, there have been some abnormalities in the process. The most important subdivision, or section, appears to have arisen by a process of spontaneous generation before medicine existed even in the most primitive form. Surgery was, no doubt, the earliest speciality. “ When wild in woods the noble savage ran,” he probably made efforts to obtain relief from the effects of injuries inflicted either by accident or design, whilst, for a very long period, internal disease was looked on as something beyond human means. At all events, it is certain that at a time when the Egyptians were employing useful surgical instruments, their system of medicine was still founded on astrology and practised with incantations. It was not till the middle of the 12th century that medicine was elaborated by the Arabian school to an independent position, nor till a later time that it was dignified by an association with philosophy and priesthood. It

is comparatively recently that obstetrics was taken out of the hands of ignorant midwives and became a department of medicine of the highest value, and it is in the memory of some still living when the eye was disengaged from general medicine. Still larger numbers of us can recollect Laennec's invention and the subsequent specialisation of chest diseases. The last few years have seen the skin, the throat, the ear, the liver, the stomach, the kidneys, the nervous system, almost every organ, and almost every class of diseases parcelled out, with more or less distinctness, to different sets of practitioners. These various classes of specialists, as a rule, treat only the more intractable forms of disease, or, at least, those which have resisted ordinary measures. The general practitioner, whose "knowledge of the patients' constitution" is a great deal more than a phrase, is able to cope successfully with a large number of "the ills that flesh is heir to;" but, practically, there are now in London four classes of practitioners, viz., about half-a-dozen general physicians, 100 operating surgeons, 500 specialists, and about 2,500 general practitioners. For better, for worse, such is our general organisation. It will be seen, that with the exception of Surgery, which existed, *ab initio*, the other specialities have been taken from general medicine.

There is one speciality, however, which, like its prototype, surgery, was abnormally developed, and came into existence at a very early date, and also, like the art of surgery, arose quite independently of medicine. In the Augustan age the science of dentistry had attained a high degree of perfection, and though, in mediæval times the blacksmith extracted teeth, it must not be forgotten that the barber practised surgery. In the nineteenth century dentistry has, perhaps, made greater progress than any other department of practical surgery. A large number of dentists are men of high culture, keen intelligence, and varied accomplishments, yet it cannot be denied that, as a class, dentists do not hold the same social position as other practitioners, as other specialists—oculists, dermatologists, chest-doctors, &c. The cause of this is, no doubt, to be found in the fact that the other specialists are first thoroughly educated in general medicine, and, indeed, most frequently engaged in general practice before they become specialists. The independent origin and position of dentistry is, no doubt, in a great measure responsible for this state of things, but there are other causes in operation. The teeth, though still very useful organs, have lost the high value which they once possessed, as weapons of attack. They are of less importance than any of the organs of special sense, except the nose. They are not essential to existence, like the narrow portal of "the breath of life," or the great *internal* organs. Hence people, who make the most careful inquiries before consulting a doctor, will go to any dentist—often the nearest. The public are not yet prepared to take the same precautionary measures to discourage quackery in dentistry, which they have done by Act of Parliament with reference to surgeons. Hence dentistry is often practised as a trade instead of a profession, and many persons well adapted to be cheap photographers, purveyors of ready-made clothes, hangers-on of the Stock Exchange, &c., whose sole qualification to practice consisted in unblushing effrontery, have crowded into the *business* of dentistry. It is this which makes the great difficulty in "levelling up" the dental profession. Free-trade in dentistry having failed, it

remains to be seen whether State agency can place this speciality on a level with the other departments of surgery.

Under these circumstances, we are not surprised that a few eminent members of the dental profession have united together to devise a scheme for raising their speciality to a more worthy position. Fourteen gentlemen, we believe, recently met at the house of a dentist who has proved himself an inventive surgeon of a very high order. The creative brain, however, which could devise a clever apparatus to catch a vesical calculus, was unequal to conceive a comprehensive measure of dental reform. Instead of proposing a broad scheme of medical tuition for dentists, instead of insisting on a more thorough training in general education, all that was proposed by these gentlemen was that a select society should be formed, consisting only of those dentists possessing the Membership of the Royal College of Surgeons. The effect of such a policy—if it has any effect at all—will be to alienate a large class of clever and highly-respected dentists from Lincoln's Inn Fields, and to lead them to establish or re-establish a College of Dentists. We sympathise with the objects of the *élite*, but we feel that their course of action is calculated to do great harm to dentistry. The improvements which have been introduced into modern dental practice have created a trade element in this department of the profession, which has greatly increased the profits of dentists. Are the reformers going to renounce the gains of mechanical dentistry, and hand them over to the surgical-instrument maker? Such a course on the part of any one of them would indeed be worthy of a Roman dentist—some time before the Augustan era. At all events, let us have a comprehensive scheme which will gradually elevate the whole dental profession to a level with that of other departments of surgery, not a narrow eclecticism which, though it may flatter the *amour propre* of a few, will promote jealousy and ill-feeling, probably excite ridicule and distrust, among the many.—*Medical Examiner*.

The Month.

THE ANNUAL DENTAL DINNER AND THE ODONTOLOGICAL SOCIETY.

We are authorised to state that there will be a meeting of the Odontological Society on the evening preceding that on which the Annual Dental Dinner is held. This will be in addition to the ordinary monthly meeting of the Society, that takes place as usual on the 6th proximo.

MR. VASEY'S CONVERSAZIONE.

The conversazione given at the private residence of the President of the Odontological Society was in every way a great success. Gentlemen from all parts of the country attended, and not only was it the occasion of a pleasant social evening, but also served the purpose—

most useful in the present agitated condition of the profession—of affording an agreeable opportunity for the interchange of opinions and sentiments on the numerous questions just now coming to the fore.

MR. TOME, F.R.S.

We are glad to learn that Mr. Tome is still improving in health. We trust it will not be long before he is again able to attend the meetings of the Odontological Society.

A NEW DENTAL SOCIETY.

A meeting was held on the 19th ult., at the house of Mr. W. D. Napier, in George-street, Hanover-square, at which it was decided to form a new Dental Society, consisting exclusively of Fellows and Members of the College of Surgeons. The name of the proposed Society, together with the necessary details, are to be considered at a meeting to be held at Mr. Cartwright's house in Old Burlington-street, to-morrow (the 16th inst.) The opinion of the Medical press upon the matter appears to be, on the whole, unfavourable to the new Association.

ROYAL COLLEGE OF SURGEONS.

At the recent examination the following gentlemen were found qualified, and admitted Licentiates in Dental Surgery, viz. :—

Adams, Frank Haydon, Budleigh Salterton, South Devon.
Burrows, Walter Shoppée, New-road, E.
Gartley, John Alexander, Sackville-street.
Halliday, Middleton Wood, Nottingham-street.
Jewers, Ernest Edwin, Plymouth.
Sayles, Francis Austin, Margaret-street.
Strickland, Frank, Boundary-road, N.W.
Woodruff, William Herbert, Leamington.

Five candidates failed to acquit themselves to the satisfaction of the Board, and were consequently referred to their studies for the usual period.

LIGHT.

Light being one of the most important considerations to any one practising dentistry, the profession must have been much interested in the recent action brought by Mr. Cartwright. Without going closely into the merits of the case, we very heartily wish him success before the arbitrator to whom the matter was referred.

DENTAL ADVERTISING.

THE articles upon Advertising that have appeared in this Journal will shortly be reprinted and published in a separate form, enriched with sundry "Curiosities of Literature." Orders can be sent to Mr. Butcher, 4 Crane-court.

AN interesting relic of pre-historic London, the massive lower jaw-bone of an hippopotamus, with its tusks and teeth, lately exhumed from a depth of forty feet, was exhibited at the rooms of the British Archaeological Association, 32 Sackville-street, on the 2nd of February.

THE 'MEDICAL PRESS AND CIRCULAR' ON THE NEW DENTAL SOCIETY.

An attempt is being made by certain dental surgeons to start a new dental society, to which none but those holding recognised qualifications shall be admitted. Some of the objects of the society are "a closer association of the more highly-qualified members of the profession, the formulation of an improved code of etiquette, the abolition of that advertising system which does so much to degrade the calling, and generally the elevation of the status and *morale* of dentists" (*sic*).

In the first place, we would remark that it is a pity when a body of gentlemen put themselves forward as models of professional culture they do not take more care that the language which they use does not contain gross errors in grammar, since such errors may perhaps lead the uninformed to suspect an absence of the superiority to which they lay claim. In the next place, we do not hesitate to say that the new society is quite uncalled-for, can do no good, and, on the contrary, must injure the profession by weakening the power of the Odontological Society, which comprises all the eminent members of the profession, and which is doing all that is possible to advance dentistry. We strongly advise the promoters of this new society to abandon their scheme, and, instead of holding aloof, to work loyally and heartily in the Odontological Society, to which they and their Profession already owe so much.

Advertising. No. 4.

Assuredly this is an age of progress. "Live and Learn," though a somewhat trite adage, is yet pregnant with meaning. Appreciating to the full the dictum of the great arch poet of society,—"The proper study of mankind is man,"—we have always considered that "The proper study of the

Dentist is the Teeth." We have hitherto fondly imagined that the duty of a member of our profession was concerned in the extraction and stopping of teeth, the replacing of lost teeth with artificial ones as like as possible to those that were "gone before" (in which branch we may appropriate, with the alteration of one word, the lines written under one of Shakspere's portraits :

" Wherein the 'dentist' had a strife
With Nature—to outdo the life,")

and generally to treat those portions of the human frame connected with teeth, jaw, and palate.

But we were wrong, and we hasten to acknowledge both our error and the source of our correction. In a lengthy notice that appeared in the *Daily News*, one day last month, entitled "The Mysteries of Dentistry," and of which we will only say, that while its position is the position of an article of news, its type is the type of an advertisement, we learn that "popular instruction" must also be considered a part of the dentist's avocation. The gentleman with whose business the "Mysteries of Dentistry" are solely concerned (and to say that it "damns him with faint praise," will hardly express the laudatory tone of the writer) "sends out," we learn, "to all parts of the kingdom, gratuitously, hundreds of thousands of useful little books setting forth all necessary information concerning the functions and diseases of teeth, with good practical advice, and quite a little book trade is being carried on in what we may designate the publishing branch of the establishment." "The Mysteries of Dentistry" has also appeared more than once in the *Christian World*.

"It is never too late to mend," and, with this information to guide us, we procured a copy, not only of the "useful little book" alluded to, but of sundry others published by dentists in the metropolis, and have at this moment nine volumes before us of various sizes and colours, and with titles ranging from the modest "Few Observations on the Teeth" to the more ambitious "Progress of Dental Surgery."

Though differing externally, there is a wonderful similitude as regards the contents of these "useful little books," the most notable point of resemblance being that, with one or two exceptions, the public get them for nothing. We are almost at a loss to know which to begin with in the short review we propose to make of them; but, inasmuch

as in one of them, we find a testimonial from a gentleman calling himself "By appointment, Surgeon-Dentist to the Queen," we think it should have the post of honour.

This is entitled "Painless Dentistry, and is by Mr. G. H. Jones, Dental Surgeon, Doctor of Dental Surgery," etc., etc. The preface is couched in somewhat strong language, but we cordially agree with the remarks upon the unqualified "would-be dentist," and shall indeed be glad if the book itself, to quote the author's own words, "prevent many persons from falling into unprincipled hands." Noting the observation that "the time is come when we cannot refuse to listen to the teachings of Science," we rush eagerly on to read the work itself, noticing *en passant* the very satisfactory assurance "by way of addenda that being in constant communication with the leading Scientific Societies of Great Britain, the Continent, and America, the author is duly advised of every improvement in Surgical and Mechanical Dentistry." The first twenty pages of the treatise consist of some eighteen chapters professing to deal with the various functions and disorders of the teeth, and concludes with one upon cleft-palate, the work finishing with "Extracts from Opinions of the Press." The book being professedly written for the unprofessional reader, we are almost surprised to see that the remarks are hardly so lucid or instructive as we should have expected. Space will not allow us to give more than one instance, which is, however, a fair example of the writer's simple style:—"The process by which the saliva is ejected is by the trituration and friction of the food during mastication acting upon the Parotid, the Sublingual, and the Submaxillary glands, causing irritation of the Superior and Inferior Maxillary nerves, which produces spasmodic contraction of the cellular tissue of the glands." With a laudable desire on the part of the author to be amusing as well as to display his learning, interspersed, among the "teachings of Science," are references to the Prophet Amos, Herodotus, early German and French writers, and quotations from "Hamlet," Hood, "Old Merry's Monthly Memoranda," etc. No opportunity is lost, in this useful little book, of alluding to the writer's house, of which an illustration is given as a frontispiece, and the extracts and notes generally refer to his various patents and peculiarities, whilst with a "prophetic soul" foreseeing that there was a faint chance of the reader becoming "weary,"

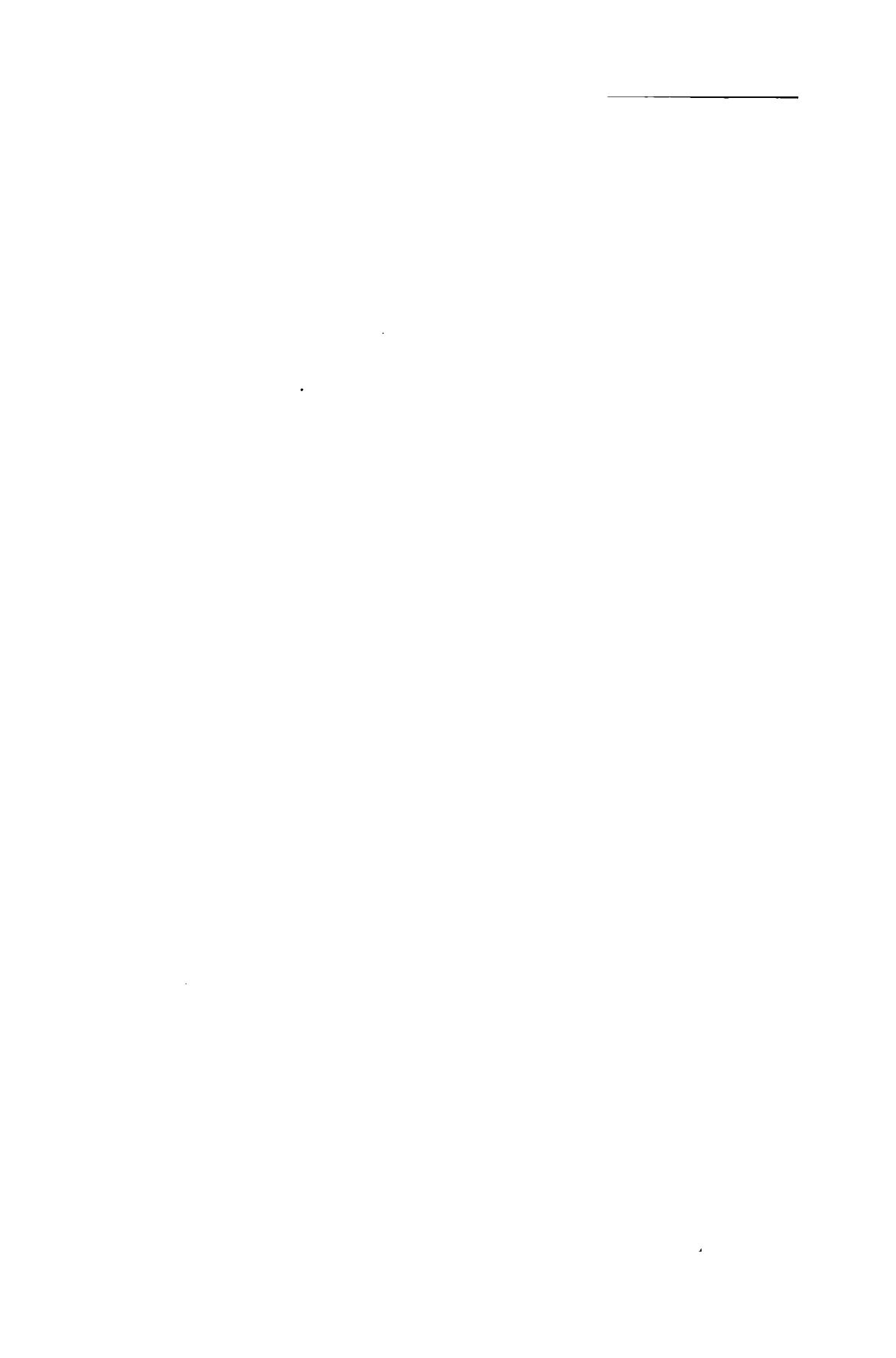
the last paragraph contains an apology for "lack of information" and a "respectful" intimation that "the author may be consulted at his only address from ten till five daily." What a combination!

"Happy are we that have so bold a man."

The space devoted to extracts from the Press contains, also, sundry testimonials, foremost among which is the one we have alluded to above, and as regards which we would quote a reply we made in the second number of this journal, in answer to a correspondent inquiring about some firm announcing themselves as "Surgeon-Dentists to the Royal Household." We then said, "Mr. Edwin Saunders is the dentist to the Queen and Mr. Edwin Truman dentist to the Royal Household. We do not know by what right Messrs. Moseley lay claim to the latter office." We have referred to the list of officers in the Royal Household for this year and find no other names than those of the two gentlemen just named. It would be interesting, therefore, to learn something more of Mr. Hutchings and his "appointment."

Of the "Opinions of the Press" themselves we will content ourselves by alluding to but one, and that purports to be from the *Globe* :—"The author boasts one benefit at least he has helped to confer on his country, by being the first to adopt and introduce nitrous-oxide for the painless extraction of teeth." We were not aware that we owed so much to this gentleman, but presume "It must be true, 'twas in the papers."

Space will not allow us to notice in detail the several other treatises before us. Most of the observations we have just made will pretty generally apply to all. We do not deny that some of them contain a slight amount of information about teeth that may be of use to the public, such as recommending cleaning at night and morning, and the importance of attending to children's teeth early in life. But the authors generally make too great a display of their profound knowledge, and we fear that the unfortunate reader of one of these "useful little books" must be sadly confused when he lays it down between—caries—bicuspids—nitrous-oxide—orris-root—oesophagus—anæsthetics, and the like. These gentlemen should remember that "a little learning is a dangerous thing," and be careful of letting the public into their secrets. One of them very kindly says, "from my



Trans. Sect.
Mag. 200 diam.

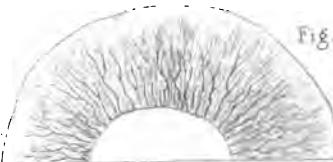


Fig. LXXXV.

Fig. LXXXIII.



Fig. LXXXII

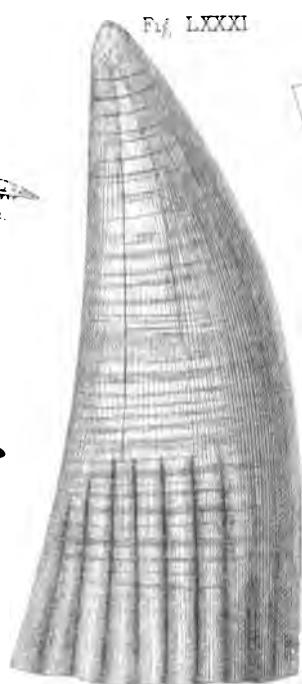


Fig. LXXXI.

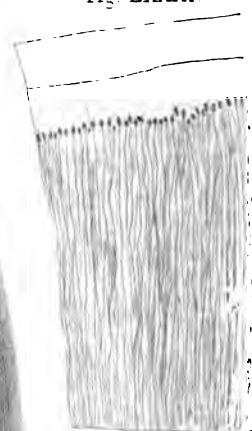


Fig. LXXXIV



wish to be sparing of even seeming technicalities, I have here, as wherever possible throughout this essay, made use of the most familiar English expressions," but we regret to say, that all the writers are not equally thoughtful of their reader's powers of understanding.

Most of the works carefully let the public know at what hour their authors are at home for consultation ; many of them announce "half price" to "servants," "persons in business," etc., and nearly all profess to hold "consultations free." In very many, too, the prices are quoted for artificial teeth, from "a single tooth" to an "entire set," though the fees for extraction and other operations are not generally stated. Cures for aching teeth—recipes for tooth powder—suggestions for mouth-washes—there is no lack of, while the "comfort of society," the "good of the public," and the "dispelling of prejudice," are the causes that induce the writers to put themselves to the trouble and expense of compiling their books. One of the most singular facts in connection with the books we have been noticing is, that with one exception, not one of their authors appear in the Medical Directory as holding the only recognised qualification in this country, viz., the Diploma of the Royal College of Surgeons. We are at a loss to account for this except by the supposition that, having so much to do in teaching others, they really have no time to think of themselves ; and, while cautioning the public against unqualified dentists, forget that they themselves may be included in the same category.

On the Microscopical Structure of Fossil Teeth from the Northumberland True Coal Measures.

By W. J. BARKAS, M.R.C.S.E., L.R.C.P., Lond.

CHAPTER XIX.

(Continued from page 256.)

Sub-family.—*Glyptodipterini* (Huxley).

The *Glyptodipterini* are fairly represented in the Northumbrian coal measures, and chiefly by their teeth ; in fact the genera of this sub-family, abound in greater number in that formation than do those of any other of the *Crossopterygidean* sub-divisions. The general characters of the *Glyptodipterini* are very similar to those of the *Saurodipterini*, the

main distinguishing point being, that the scales and head bones of the former sub-family are sculptured, while in the latter we have seen that they are smooth. These fishes are described by Professor Huxley as having the following characteristics:—Two dorsal fins; acutely lobate-paired fins; principal and lateral jugular plates; no branchiostegal rays; large teeth with grooved bases; sculptured scales and head-bones; three occipitals; large distinct parietals and equally distinct frontal bones; tail, diphycercal in some of the genera, and heterocercal in others; scales occasionally rhomboidal and sometimes cycloidal. Fishes presenting these characters have been further sub-divided by Professor Huxley, into:—First, rhombiferous *Glyptodipterini*, and second, cycloidal *Glyptodipterini*; the first sub-division is characterised by the fishes possessing diphycercal tails, and being generally covered with rhomboidal scales—of this branch, however, there are not any representatives in the Northumberland coal measures, judging from our present acquaintance with the fossil remains of that formation; the second is distinguished by its fishes having heterocercal tails and cycloidal scales—it is to this sub-division that the fishes pertain to which I shall now direct your attention.

Genus.—*Rhizodus* (Owen).

Concerning this fish very little is known with any certainty; it has never been found intact nor have its supposed bones been discovered together with any degree of frequency, in fact, to speak strictly, we only know its teeth, scales and premandibular bones; the pectoral arch and fin-rays have been found associated with one of the teeth, and they have, therefore, been conjectured to be parts of the same fish; this slab is in the possession of the Natural History Museum of Edinburgh, but before this conjecture can be accepted we must have much further evidence. Mr. Atthey described, in the sixth volume of the *Transactions of the Tyneside Naturalists' Field Club*, various bones which he considered to belong to *Rhizodus*, because they were frequently associated with teeth that he supposed to be teeth of *Rhizodus*; later researches, however, have shown that these supposed *Rhizodus* teeth were really the teeth of a Batrachian called *Loxomma*, and as a consequence the supposition that these bones pertained to *Rhizodus* must also be erroneous.

To repeat, then, the only remains that we are acquainted with are the teeth, premandibular bones and scales.*

This genus was founded by Professor Owen upon certain teeth that were designated *Holoptychius* by Agassiz, and *Megalichthys* by Hibbert; the latter name was soon seen to be a misnomer, for these teeth did not at all resemble those of *Megalichthys*; the title *Holoptychius* was, therefore, the one generally accepted by paleontologists, and it was while examining the teeth of the different species of that genus that Professor Owen noticed that some of these teeth did not possess all the ordinary characters of undoubted *Holoptychius* teeth, he therefore raised them into a separate genus. In course of time these teeth were found associated with certain scales that bore out Professor Owen's idea as to the difference between *Rhizodus* and *Holoptychius*; these scales were somewhat ovate in shape, but otherwise they possessed the general characters of the scales of *Holoptychius*, in fact, Professor Williamson had described them in the Transactions of the Philosophical Society, for 1849, as scales of *H. Sauroides*; the general similarity between the teeth and scales of these two genera show that they should be classified in one family. Then portions of the mandibular bones were discovered with a few of the teeth *in situ*, and the teeth were observed to be of two sizes, and the external surface of the bone was sculptured. So far as our knowledge extends we may fairly consider *Rhizodus* to a member of the *Crossopterygidae* and of its sub-family *Glyptodipterini*. Professor Owen, in his "Palæontology," which was published some time before Professor Huxley's classification was printed, arranged *Rhizodus* and *Holoptychius* in a family called *Holoptych*, and supposed them to be allied to the *Coelacanthians*. Prior to the appearance of Professor Owen's synopsis Agassiz designed it as a *Sauroid*. Although I have said that we must characterise these remains as those of a fish, it is only fair to state that this opinion is not generally accepted. Mr. T. P. Barkas, Mr. Atthey, Mr. Hancock, and many other paleontologists are inclined to believe that they were reptilian and not piscine; this difference of opinion can only be settled by further discoveries, certainly the teeth of *Rhizodus* are amphibian in form and structure, but the same

* In the absence of my son from England, I may say that I think that undoubted bones of *Rhizodus* belonging to the shoulder girdle are in the British Museum and Edinburgh Museum. —T. P. B.

may be said of many other teeth that do undoubtedly belong to fishes. The teeth and scales of *Rhizodus* are reported to have been found in the South Northumberland coal measures by Mr. Atthey, but as I have already explained, the teeth were owned by a Batrachian, *Loxomma*; with regard to the scales, Mr. T. P. Barkas, F.G.S., considers them to be the scales of *Archichthys*, or of some other member of the *Glyptodipterini*, but certainly not those of *Rhizodus*, and with this opinion I quite agree. *Rhizodus*, therefore, is not obtained from the true coal measures of this county; its remains, however, have been found in the coal strata of North Northumberland, which belong to the Carboniferous limestone age; from this formation I have obtained some very good specimens, and I am indebted to Professor Page of the Newcastle-upon-Tyne Physical Science College, for the tooth from which I made my sections. If *Rhizodus* had been found in the true coal measures, the fact would have been unique, because no other palaeontologist, to my knowledge, has discovered its remains in that formation, although they have frequently found them in the limestone coal-beds. This fish has never been observed in Devonian rocks; it, therefore, belongs solely to the Carboniferous limestone period, and must have had a very short period of existence compared with other genera. The genus *Rhizodus* tends somewhat to overthrow Darwin's theory of the "Survival of the Fittest," because here we have a fish between thirty and forty feet in length, as estimated by Hugh Miller, with a body covered with thick scales and jaws garnished with teeth that occasionally attain to six-and-a-half inches in height, teeth larger than those of any other fish that existed during the Carboniferous era, yet it became extinct in a very short time geologically speaking.

The form of the mandible is unknown to me, as I have examined the teeth only when detached from the jaw, nor can I speak upon the authority of others, for all the mandibles that have been recorded are terribly distorted as well as very fragmentary. The external surface of the bone is said by Professor Owen to be tuberculated and ridged. From the alveolar border arise two rows of teeth—an internal one of large laniary teeth, and an external series of smaller, but still large, teeth. The number of laniary teeth in a mandible is said to vary in different specimens, but the average is from three to five.

The laniary teeth (fig. lxxx.) are made elongated, conical, and rather acutely pointed ; the smaller serial teeth are also conical, but they are somewhat obtuse at their apices ; both forms have a tendency to curve inwards, but this is most marked in the larger teeth ; they have an elliptical transverse section, the edges of the ellipse being trenchant, but, in some cases, only one side is thus sharpened, the other being rounded ; in the specimen I have figured both edges are cutting. The external surface is smooth and glistening, and generally of a rich brown colour, though it sometimes approaches to black ; this tint is often uniform, but, in the tooth portrayed in fig. lxxx., it is not so, but is arranged in a series of alternate light and dark brown rings ; these rings commence at the base, and extend up to the apex. The base is deeply grooved longitudinally, the ridges between the grooves are rounded, and their external surface is sometimes smooth and sometimes marked by a fine vertical striation, which extends above the fluted base for a short distance. A vertical section of a tooth exhibits the form of the pulp cavity, and the method of the insertion of the roots into the jaw. With regard to the roots, not much need be said ; their mode of formation by the folding of the dentine, and the gradual division of the convolutions into roots, and the extension of the separated roots into the bone substance until the dentine becomes blended with the osseous structure, are exactly similar to the description I gave of the roots of *Megalichthys*. The structure and character of the roots are very fairly represented in plate 36, fig. i. of Owen's *Odontography*. The pulp cavity also presents similar characters to that of a tooth of *Megalichthys*, being conical and broadest just before the dentine becomes convoluted, but when the cavity is cut transversely, it presents an ovate section corresponding to the external form of the tooth.

The microscopical appearances that I detailed in describing vertical and transverse sections of the teeth of *Megalichthys* agree exactly with the characters presented by similar sections of the teeth of *Rhizodus*. The diameters of the calciferous tubules in the latter tooth average about one-ten thousandth of an inch, but the tubes ramifying in the convolutions of the base are slightly larger than those permeating the body ; the interval between two tubes is equal, as a general rule, to about four times the diameter of one tube. The tubules, in their course towards the enamel, pass into and through

a well-marked layer of cells filled with carbonaceous matter, situated near to the periphery of the dentine. I have given a representation of this structure in fig. lxxxi. After leaving this stratum the fine tubes proceed to the external surface, and many of the ramuscules enter into the enamel.

The enamel is a comparatively thin coat which covers the whole of the inserted part of the tooth, and also extends for a short distance down the convoluted base, dipping, at the same time, into the grooves. It possesses a similar structure to that of the enamel of a tooth of *Megalichthys*, except that there are not usually any of the black points that I mentioned as being always observed in the enamel of the latter fish.

Before leaving this fish, I wish to point out that Professor Owen, in his "Dental Characters of Carboniferous Fishes," gives a description, accompanied by a plate, of a tooth which he considers to be new, and names *Mioganodus lanarius*. This is only another example of the numerous errors that the author has made in his work with regard to our Northumbrian coal measure teeth. It is not new at all, and was named long prior to the date of Professor Owen's supposed discovery. It is a common specimen of a detached tooth of *Loxomma*, which formerly was thought to be a tooth of *Rhizodus*.

Fig. lxxx.—Tooth of *Rhizodus*. Nat. size.

lxxxi.—Trans. sect. of ditto. Mag. 200.

lxxxii.—Maxilla of *Rhizodopsis*.

lxxxiii.—Premaxilla of ditto.

lxxxiv.—Mandible of ditto.

lxxxv.—Trans. sect. of body of Tooth of ditto. Mag. 200.

A Clinical Lecture on a Case of Foreign Bodies in the Trachea and Oesophagus.

By CHRISTOPHER HEATH, F.R.C.S.,

Holme Professor of Clinical Surgery, University College Hospital.

GENTLEMEN,—You will remember that before Christmas I had under my care an exceedingly interesting, and, so far as I can learn, unique case of a tooth-plate with artificial teeth impacted in the trachea or lower part of the larynx in a patient who had at the same time swallowed another tooth-plate. There are plenty of cases on record of a tooth-

plate being swallowed, and a few of a similar foreign body passing into the wind-pipe, but I have not found one in which both accidents occurred simultaneously as in our patient, whose case I will briefly narrate to you from the careful report of Mr. C. J. Watson.

The patient was a young lady, æt. 21, who was admitted on the morning of Sunday, the 12th December, under the following circumstances:—During the previous night she had a fit of an epileptiform character, on recovering from which it was discovered that her artificial teeth had disappeared. These consisted of the two right incisors, mounted on a gold plate, and fastened by a pivot to the



FIG. 1.

FIG. 2.

central tooth (fig. 2), and of the left central incisor and canine teeth also mounted upon a gold plate fastened partly by a pivot and partly by a gold band (fig. 1). Her sister, on finding the teeth missing, called in a neighbouring medical man, who passed his finger into the throat and found nothing; but the patient being dissatisfied was brought to the hospital at 8.30 a.m. When seen by Mr. Collyns, the house-surgeon, she complained of pain on the left side of the neck a little below the cricoid cartilage, but nothing could be felt externally. A sponge probang was passed, and the house-surgeon fancied it hitched against something, as it was withdrawn, and therefore tried the oesophagus forceps and umbrella probang, but without result. When I saw the patient at eleven o'clock I passed a probang without result, and made her swallow some boluses of chewed bread, which she did with difficulty. Later in the day I passed a "coin-catcher" and the horse-hair umbrella probang without result, and then a large elastic oesophagus-bougie, which possibly displaced something, for the patient at once said she felt easier and could swallow readily. At this time there was nothing to direct attention to the wind-pipe, for the slight huskiness of voice would have been easily caused by the repeated manipulations the upper part of the throat had undergone. In the evening, however, the

breathing became more laryngeal, and the house-surgeon, thinking that the foreign body might have lodged in the trachea or bronchus, examined the lungs and found them equally resonant, the breathing equally weak on both sides. I mention this particularly because, at a later period, there was a marked difference on the two sides. The patient slept well, and on the next day (13th) she complained of pain at the episternal notch, and the breathing continued laryngeal. As, however, she objected to stay in the hospital—for which, indeed, she was not a suitable inmate—I allowed her to go home, to be under the care of her own medical man. On the following day (14th) the medical man wrote to ask that she might be re-admitted, as the symptoms had become more urgent, and we then found that the laryngeal character of the breathing had become more marked, and that there was a decided difference between the two sides of the thorax, there being a marked diminution of expansion on the *left* side. There could be no doubt now that one of the teeth-plates had passed into the wind-pipe, but it was difficult to explain the want of expansion on the left side, since foreign bodies which fall through the trachea almost invariably pass into the *right* bronchus, owing to the tracheal septum being somewhat to the left of the median line. To clear up all doubt as to the existence of the foreign body before undertaking any operation for its removal, I determined to have recourse to the laryngoscope, and, somewhat mistrusting my own skill in the use of that instrument, I was very glad to avail myself of Dr. Morell Mackenzie's kind offer of assistance. Accordingly, on the evening of the 14th, that gentleman made a laryngoscopic examination, and not only satisfied himself, but demonstrated to myself and others, that two white teeth were to be seen fixed in the trachea immediately below the larynx. Nothing was to be seen of the second plate, and it was just possible that this might be obstructing the bronchus lower down. With the certainty of the presence of a foreign body in the trachea, there could be no question as to the propriety of at once removing it by operation, and accordingly on Wednesday, December 15th, I performed tracheotomy above the thyroid isthmus, and extracted, with some little difficulty, the tooth-plate and two teeth I show you (fig. 2). Although the incision into the trachea was high, the foreign body lay above it, and must, therefore, have been entangled in the

cricoid cartilage. Why it should have affected the left side of the chest I cannot say, except by supposing some irritation propagated to the pneumo-gastric nerve of that side, but that this alone was the cause was proved by the immediate recovery of normal breathing by the left lung, and by the very satisfactory discovery of the second tooth-plate (fig. 1) in the evacuations on the evening of the same day. The further history of the case need not detain us long. The wound into the trachea did not heal by first intention, but gradually closed, the patient going home on January 3rd with the skin-wound not completely closed.

It will be convenient to consider the question of the treatment of the foreign body which passed into the stomach, before taking up the more urgent one of the foreign body in the trachea. A foreign body which is readily swallowed rarely gives any trouble if left to itself, for a coin or similar object will find its way safely enough through the intestinal canal if allowed to become thoroughly coated with faeces. The common practice of giving a child a dose of castor-oil because it has swallowed a half-penny or a button, cannot be too strongly deprecated. The case is different, however, if a sharp body such as a needle or pin, or even a fish-bone sticks in the gullet, for then the recurring efforts of deglutition may force the offending body through the wall of the canal and give rise to serious mischief. Even fatal results have arisen from perforation of the aorta or the heart by a needle, and within the last few years I have had here two cases of swallowed pins giving rise to torticollis or wry neck from the irritation set up. In both these cases I was fortunate enough to bring up the offending pin with the umbrella horse-hair probang, but if this had not been done no doubt suppuration would have been set up among the muscles of the neck, and possibly the foreign body would have been discharged with the contents of the abscess.

The most difficult foreign body in the gullet we have to deal with is a set of artificial teeth mounted in metal, as in fig. 1. The gold bands or pins, by which the plate is affixed to the adjacent teeth, are so sharp as to catch readily in the pharynx or oesophagus, and even if safely landed in the stomach, the "set" may be too large to pass through the intestinal canal. Mr. Pollock has recorded (*Lancet*, 1869) two cases of this accident, in one of which the teeth passed safely per anum, while in the other the stomach after some

weeks rejected the intruder, which was safely vomited. It would be doubtful practice, however, to induce vomiting with the view of ejecting a foreign body from the stomach, for fear of getting it impacted in the oesophagus, and the same may be more certainly said of any attempt to draw up a foreign body through the gullet, although Mr. Little has recorded one remarkable and successful case of the kind. Given a case of foreign body impacted in the pharynx, it should undoubtedly be extracted if possible with the horse-hair probang, coin-catcher, or oesophagus forceps, and, all attempts at its removal failing, recourse should be had without delay to the operation of cesophagotomy. This operation has now been several times performed in this country with success, and notably by Mr. Cock, who has on two occasions extracted teeth-plates by it. The operation consists in making an incision along the border of the left sterno-mastoid as in tying the carotid artery, but going to the inner side of the carotid sheath the operator cautiously dissects down to the pharynx and oesophagus, being guided by the foreign body within the canal. An opening being made in the gullet the foreign body is carefully extracted and the wound allowed to granulate up. Had I been able to detect the tooth-plate impacted in the oesophagus in our patient, I should certainly have performed cesophagotomy without delay, after having given a fair trial to attempts to withdraw the plate.

The introduction of a foreign body into any part of the air-passages is necessarily fraught with danger to the patient, but the immediate urgency of the case will depend upon the position occupied by the intruder. If the chink of the glottis is filled up completely by such a thing as a piece of meat, the patient must necessarily die, unless it is promptly removed; and it is well to bear in mind that aged persons, who have lost their natural teeth and cannot afford to supply the want artificially, are in the habit of "bolting" morsels, which, if drawn into the glottis by the strong inspiration following a laugh or a cough, may cause the sufferer to fall back insensible, and in a condition which is popularly supposed to be one of apoplexy. I need hardly point out to you, however, that the want of breathing would at once distinguish the case as one of obstructed larynx, and the appropriate treatment would be to introduce

the finger, and, if possible, hook up the offending morsel ; failing which, *laryngotomy* should be instantly performed, and artificial respiration persevered with for some considerable time before all hope of saving the patient is abandoned. I say laryngotomy rather than tracheotomy, because you will meet with cases of this kind suddenly, and when quite unprepared for surgical proceedings ; and, besides, every moment's delay is of importance. Every one may be supposed to have a sharp pen-knife in his pocket, and the simple operation of cutting across the crico-thyroid membrane may be done as satisfactorily with that instrument as with the more professional scalpel. Another advantage is, that the opening in the crico-thyroid membrane will gape sufficiently to relieve the patient without the introduction of any tube ; or, if the space is small, the cartilages can be held asunder with a blunt pair of scissors. Let me remind you that the firm ring of the cricoid cartilage is always to be felt, even in women and children, although the *pomum Adami* may be badly developed, as it usually is, except in men ; and recommend you in urgent cases not to attempt any superficial vertical incision, but, steadyng the larynx with one hand, to cut boldly across the membrane and into the larynx. But, supposing you to have been fortunate enough to restore your patient to life, he cannot be considered out of danger so long as a foreign body remains impacted in the larynx ; and steps must be taken for its removal. A soft catheter passed through the artificial opening, upwards through the larynx, would probably displace the foreign body into the mouth ; but if it were impacted in the ventricle of the larynx, it might be necessary to have recourse to laryngeal forceps, guided by the laryngoscope, or even to perform thyrotomy, i.e., to divide the thyroid cartilage, so as to gain the interior of the larynx.

The more frequent case, however, is when, as in our patient, a foreign body is unconsciously drawn into the trachea, passing through the larynx easily, and giving at the moment very little trouble. A disobedient child, with a farthing or a button in its mouth, gets a thump on the back to enforce the order for removal, and consequently makes a violent inspiratory effort, as the preliminary to "roaring ;" but that effort draws the foreign body into the trachea, with no symptoms at the moment. Later on, a

violent attack of dyspnoea and spasm occurs, for which medical aid is sought, and then it is found that the foreign body is in the wind-pipe. Now, I believe, the urgency of the symptoms will depend very much on the nature of the foreign body. In our recent case, the symptoms were very slight, so slight at first as not to direct attention to the wind-pipe, and though, as time went on, the breathing became more laryngeal and noisy, there never was any spasm. The explanation is that the tooth-plate was fixed, and did not come into contact with the sensitive vocal cords. Some of you may remember a child who was under my care last summer, with a cherry-stone in its trachea, in whom the symptoms were negative so long as the child was quiet; but when he cried and coughed, the cherry-stone was thrown up, and irritated the larynx, giving rise to spasm. The well-known case of Mr. Brunel is an instance of the same thing. The half-sovereign which passed into his trachea fell into his right bronchus, and lay there quietly enough until he inverted himself, when it slid along the trachea, and produced violent spasm which threatened his life; and it was only after tracheotomy had been performed, and the watchfulness of the larynx, thus eluded, that the coin passed through the rima glottidis into the mouth. And yet now and then you may be lucky enough to get out a foreign body by inverting the patient, as happened to my friend and former colleague, Mr. Henry Power, who, some years ago, at the Westminster Hospital, shook out of a man's trachea the flat pebble I now show you. But let me warn you not to expect too much from such a proceeding, and to be cautious in adopting it without being prepared instantly to perform tracheotomy, should the foreign body happen to become fixed in the larynx, and thus give rise to urgent dyspnoea.

But a foreign body may not merely pass into the right bronchus, it may become fixed there, particularly if it is of such a shape as to fit pretty accurately into the opening. Under such circumstances, the right lung will cease to work, either wholly or in part, and the left lung will have to do extra work, in order to make up for the occlusion of its fellow. If the body is solid and smooth, it will probably get coated with mucus, and loosened so as to be driven back into the trachea on some effort of coughing, but if it happen to be of an absorbent nature, such as a bean or pea,

it will swell with the moisture of the part, and will become more firmly fixed, leading inevitably to a fatal result. The coloured illustration I show you in Mr. Cooper Foster's "Surgical Diseases of Children" well illustrates this point. Again, the foreign body, if of suitable shape, may be drawn completely into the lung, and set up there fatal suppuration; though Sir Thomas Watson gives, in his classical "Lectures on Physic," the case of a child who coughed up a tin-tack, with a quantity of offensive matter from the lung and recovered.

In the great majority, then, of cases of foreign body in the trachea, an opening must be made in that tube, by preference above the isthmus of the thyroid. The opening may be deliberately made under chloroform, and the after-proceedings conducted according to the nature of the body. If light, like a cherry-stone, button, or piece of cork, the edges of the tracheal wound should be held open with blunt hooks, until the entrance of air produces a cough, when the intruder will probably be shot out. If not, a probe may be carefully introduced, or a bent wire used to bring out the offender, or, in case of a heavier body, forceps may be cautiously employed, both above and below the opening, to grasp it; or, failing this, the patient may be inverted with safety, and a sharp blow struck over the back to dislodge the foreign body. The presence of a foreign body in the wind-pipe having been once satisfactorily ascertained, the sooner it is removed the better, for, to trust to spontaneous expulsion, is to expose the patient to very considerable and constantly recurring risk.

Clinical Lecture on the Scope of Dental Surgery.

Delivered at King's College, London.

By HAMILTON CARTWRIGHT, M.R.C.S.,
Professor of Dental Surgery at King's College, and Lecturer at the London
School of Dental Surgery.

The duty which devolves upon me of giving you a course of clinical lectures and demonstrations on dental surgery is a peculiarly pleasant and congenial one, inasmuch as I have to address a body of gentlemen who are studying medicine and surgery in a general hospital, upon a subject which has been looked upon too much in the light of a speciality, more

separate than other specialities from medicine, and which I fear, as a rule, does not meet with that measure of attention which is its due ; although, if you would give even a very small proportion of your time, in comparison with that allotted to your other studies, to its consideration, I am certain that you would thereby render yourselves good service in a future day. I fear that there are too many not only of those who are without the ranks of that branch of surgery which I profess, but also of the less highly-cultivated practitioners within them, who seem to think that the practice of dentistry merely implies the filling or extraction of teeth ; and I must confess that I have often been surprised at the ignorance of intelligent members of our profession in relation to diseases of these organs. Feeling strongly as I do, as a surgeon, the *rapport* existing between this speciality and general surgery, I shall attempt to show you to-day, in this Introductory lecture, the necessity, on the one hand, that the dental practitioner should not only be a fully-qualified but also an intelligent surgeon ; and, on the other, that the general surgeon, eye, and the physician, too, may derive some benefit from studying those diseases, direct or indirect, which have their origin in morbid or abnormal conditions of the dental structures. You all recollect the fable of Menenius, wherein he pointed out to the dissentient plebeians the harmony existing between the various parts of the human frame, applying the moral of his story to their divisions with the patrician body of the state. Now, the teeth are in as intimate relation with the body generally as is the eye or ear, and their morbid conditions can only be treated rationally upon such acknowledgment. The oculist and the aurist are fully-qualified practitioners. The dentist should be so also, and it seems to me ridiculous that men should cavil about their status and position in the social scale, if they do not choose to educate themselves as other specialists are educated. The teeth must not be looked upon as mere pegs or nails inserted into living structure, but as organs having the most important relation to the whole system ; and I think that I shall be able to prove to you that there is not a period in life when some knowledge concerning their development and condition may not be of service to you in any branch of practice, whilst the special objects of my future demonstrations will be to give you practical illustration of the treatment and diagnosis of cases quoted

here, and to show you those operations which, having for their object the relief of pain or the arrest of disease, may be especially useful to those in country practice, or to those about to be engaged in the naval and military service of their country.

Firstly, consider, with me, the position of the maxillary bones, in which the teeth are implanted. Consider with how many nerves, with their attendant ganglia and plexuses, those teeth have connection. On each side, the oral cavity is in close proximity to the internal and external ear. Above, it is in near relation to the orbits and that oft-troublous cavity the antrum, which is again in contiguity with the nasal fossæ, the contents of which are frequently affected as a result of dental disease; whilst, finally, the continuation of the oral aperture leads to the stomach, in which arise, should assimilation be imperfect, the first causes of faulty structural development, or in which are produced, if dyspepsia exist, those acids which, being eructed into the mouth, constitute a local source of dental lesion; whilst the unhealthiness of the mucous membrane of the gums may serve as a valuable means of diagnosis in various morbid conditions of the gastro-intestinal mucous track.

The necessity of some knowledge of dental surgery to the general surgeon, and of medicine to the specialist, is shown from the earliest period of existence. Caries and imperfection of tooth-structure are to a very great extent, I regret to say, diseases of civilisation; and my experience as a traveller in many parts of the world has taught me how much influence climate and *modus vivendi* have, not only upon the condition of the teeth, but upon the body generally.

As a rule, the savage or aborigine scarcely suffers from dental lesion, save in those instances where the conditions of his life are peculiarly adverse to constitutional integrity. The freedom of the aborigine from disease undoubtedly depends, to a great extent, upon the healthy life he leads. His hours are regulated by the rising and setting sun, whilst his occupations all conduce to health; but, when the country is notoriously unhealthy, his system is affected by the existing factors of disease; thus it is remarked that, on the eastern side of the Rocky Mountains, where the climate is healthy and bone-forming food abundant, caries is unknown; whereas, on their western boundary, where animal food is very scarce, and the vegetable diet deficient in those ele-

ments which are the chief ingredients of osseous tissue, disease is not unfrequent. Mine has been the same experience in relation to the Zulu and Bosjesman tribes in Africa, and also with regard to various parts of China. If you ever happen to be near Hythe, in Kent, and will visit the old church there, you will see hundreds of the skulls of our Anglo-Saxon progenitors, and will find that their maxillæ are well developed and firm in structure, with not a tooth decayed in young or old ; and in this specimen, at least two thousand years of age, found in a sarcophagus during excavations made at Cumæ some short time since, you see another proof that the changed conditions of modern life present important factors in the induction of disease. If you will examine more modern skulls, a very different story will present itself, decay revealing its ravages on every side. The causes of this disintegration of tissue are numerous. Change of climate may alike produce or arrest disease ; thus when the healthy Irishman or Scotsman quits his home for another habitat, where potatoes and oatmeal, rich in bone-material, are not abundant, in a few years he suffers from disease alike with those amongst whom he has sought another home ; whilst, on the other hand, another person may regain new health in another clime, and the tendency to disease may cease. The argument from these facts is that, inasmuch as it is proved that a constitutional condition can exist in which the teeth may be free from caries, there is no reason why, if we discover the conditions of this immunity, we should not be able, in the course of a generation or two, to bring about a like result ; for all evidence tends to prove that there are constantly recurring changes of waste and repair taking place in the dental tissues as in other parts, though naturally their structure forbids these being as rapid as in other tissues. I am confident that the prevalence of dental disease in the present day is, in no small proportion of cases, a direct consequence of the way in which our food is over-refined and prepared, so much so, that it is too frequently almost entirely deprived of those elements which are most requisite for the formation of firmly knit bones and healthy muscle ; and I fear that parents will never be taught to understand, until they are instructed in the elements of physiology and hygiene as a part of their education, how often they are unwittingly responsible for the sufferings of their offspring. The bread of our Anglo-Saxon progenitors

was prepared of crushed meal, in which the husk and the flour were mixed up together, so that all the necessary constituents for tissue-formation were retained, with such results as those to which I have alluded. The pregnant mother should be enjoined to make use of food containing an excess of nitrogenous material, so as to counterbalance the extra demands on her blood for those inorganic particles which are necessary to build up the framework of her child. The child being born—and it is after birth that the greater portion of the bony framework is deposited—its digestion and its powers of assimilation must be carefully considered in determining the character of its food; whilst, in later years, it should be amply supplied with ossifacient material, such as eggs and potatoes, and, above all, if its assimilative powers be intact, bread made with the bran. But the treatment of the child ought to commence with that of the parent during her pregnancy; and, to make her submit to this, she must be taught the responsibility which her condition imposes upon her in regard to the welfare of future generations. Could this be done, in a generation or two, many constitutional defects might be blotted out, and notably diseases like rickets, scrofula, and caries. I have had the good fortune to have some few children under my care from early childhood; and, by judicious attention to their digestive and assimilative powers, I have been enabled to arrest those ravages which, I am convinced, would otherwise have maintained their sway until nearly every tooth had been destroyed.

Let me next consider the subject of teething, a period so fraught with danger to the child, that no less than 5 per cent. of the deaths under one year, and 7 per cent. of the deaths between that period and three years, are ascribed to dentition. At this epoch, when the spinal predominates over the cerebral system, the slightest sources of irritation may lead to fatal results: for that which causes a shudder in a man may produce a convulsion in the infant. The symptoms of dental irritation may be confounded with congestion or inflammation of the brain and its membranes, and in some cases a mistaken diagnosis might be of serious import. Whilst cursorily alluding to the maladies which are dependent upon, or synchronous with, the eruptive stage, I cannot but draw your attention to the empiricism often exhibited in lancing the gums, that favourite method of treatment for actual or supposed dental irritation. There is little

doubt that the gums are not only lanced during those periods of repose which characterise evolution, or when the osseous structure of the maxilla still remains unabsorbed over the advancing tooth, but that, as a rule, this operation is performed simply because, in a few cases, the relief of tension in congested tissue has sufficed to relieve an attack of convulsions. Where the tooth is just beneath the gum, or where there is manifest congestion, the incision of the parts may be productive of much benefit, but otherwise it is a procedure not only useless but barbaric. Retardation in development of the teeth is also a means of indicating future disease ; for example, when their eruption is delayed beyond nine months, there is every reason to suspect that the child is suffering from rickets, a valuable means of diagnosing that disease for which we are indebted to Sir William Jenner. Next I must mention some of those diseases connected with the teeth which characterise a later period in life, than which none is of greater importance to the practitioner than neuralgia. If you will recall to mind the extensive sympathetic connections of the trigeminal or fifth nerve, it will not seem strange to you that the teeth should be often connected with reflex phenomena leading to simple spasm, neuralgic pain, or even epilepsy, whilst, in nine cases out of ten in which neuralgia attacks the upper extremity, a dental lesion will be found to be the exciting cause of irritation. This disease has the epithet "idiopathic," far too often applied to it; for in nearly every case a cause exists, though it may be concealed from us, whether it has its origin in the filament of nerve ensnared by cicatrix, in a hidden splinter or a lurking parasite. Doubtless, you are all familiar with a case quoted by Sir Thomas Watson, of a well-known physician who was forced to relinquish an extensive practice and a distinguished position through the terrible agonies he suffered as a consequence of tic douloureux. Every remedy was tried in vain, until death revealed the cause, which existed in a small osseous excrescence upon the falciform process of the dura mater. If I could lay down an axiom with regard to the treatment of neuralgia, it would be, "Never rest until you have found the cause"; for it will often discover itself when least expected.

[Mr. Cartwright here related a case under his care, in which he found severe neuralgia of the parts supplied by the cervical and brachial plexuses to be due to the presence of a

small piece of glass in a swelling over the third phalanx of the second finger of the right hand; the removal of which permanently cured the neuralgia.]

Like sources of irritation exist very frequently in diseased or abnormal conditions of the structures of the teeth, and my experience teaches me that this is a fact not sufficiently appreciated by medical men. The ordinary treatment of neuralgia is far too often empirical. One specific is tried after another with varying success, until all fail, whilst the oral cavity, so rich in explanations of reflex pain, is quite forgotten or overlooked. Caries is by no means the most frequent source of neural pain; for it is often to be found in exostosed cementum, or as a result of secondary dentine formed within the pulp; whilst, yet again, an osseous excrescence growing from the dentinal wall may, by its pressure on the nerve, be an exciting cause, as in the case of this beautiful and unique specimen prepared and kindly lent to me, with others, by Mr. Salter. It is sometimes difficult to discover the offending member; but a gentle tap, the alternate use of hot and cold water, or, if the pulp be sphaerulated in a non-carious tooth, the appearance of opacity on exposure to a strong light, will make the culprit doff his disguise, and reveal a traitor in the camp.

Amongst my notes, I have recorded the case of another patient who had long been the subject of intractable neuralgia in the head and face. She had been in the hands of celebrated physicians, of quacks, of homeopaths and hydropaths, but with no relief. The pain invariably had its origin on the left side of the face, just over the malar bone. On examination, all her teeth seemed perfectly sound, and the tests mentioned above suggested no intimation of disease. One day, knowing my suspicions that the teeth might be the source of her trouble, she told me that she had an "undefined sensation" in one of the teeth, but she could not point out whether it was the canine or the bicuspid on the left side of the superior maxilla; but the renewal of the tests gave no sign of pain. After various experiments, I resorted to the use of a galvanic current, which made her say that she was certain that the canine was the tooth which had a different feeling from the others. Warned that the loss of the tooth would very probably not effect a cure, she begged me to extract it on the chance of relief being afforded thereby. I did so, and, if you will

examine this preparation of the tooth under the microscope, you will see that the cause existed in an almost total ossification of the pulp. After a week, her pain entirely ceased, and not long since she described herself to me as sitting at an open window on a cold day at the seaside—a thing which she had not dared to do for several years. Of such cases I have seen many; and the immediate relief which occurs upon the removal of the exciting cause of pain makes me somewhat question the correctness of the late Dr. Anstie's view in relation to neuralgia, that the seat of pain is invariably situated in the posterior roots of the spinal nerves, and that an essential condition of the tissue of those roots is atrophy. Then, various diseases of the ear, the nose, and antrum, and even amaurosis, have had their origin in diseased conditions of the teeth, so that an oversight as to the source of mischief might lead to the loss or impairment of the functions of at least three of the organs of special sense. Mr. Hancock, of Charing Cross Hospital, mentions a very remarkable case of amaurosis dependent upon nothing more than an overcrowded condition of the teeth. Four of these were removed with such good effect, that the sight, which was nearly entirely lost, improved at once, and was again perfect within ten days. I could quote many similar cases, many of which have occurred in my father's practice, some few in my own, but would refer all of you who are interested in the subject to Mr. Salter's valuable work on "Dental Pathology and Surgery."

It must not be forgotten that the teeth are not only the sources of, but that they are not unfrequently the objects of, sympathetic irritation themselves, and have, doubtless, in the absence of adequate knowledge as to the cause of pain, been often condemned for the faults of other members, like certain unfortunate officers in a recent naval inquiry. Thus I have frequently seen a constipated condition of the bowels induce pain in the teeth; and in another case an attack of gout is always ushered in by intense dental suffering, which a dose of colchicum relieves at once; whilst I have long had a patient under my observation, who, suffering from haemorrhoids, always has acute pain in his upper molar teeth when these become congested, which invariably ceases when an attack of haemorrhage relieves the engorged vessels. Many of the tumours which afflict the maxillæ have their origin in a diseased root or an impacted tooth, these varying from

the simple abscess to the cyst or odontome, in which latter tumour an appreciation of its character renders its removal the simplest of operations. A swelling occurring in connection with the unexplained absence of a member of the normal dental series should always suggest a hint in such cases, and it will be found that this class of tumour is invariably encysted, so that the removal of a little superficial bone will permit these growths to be enucleated with little loss of tissue.

Again, in a very large proportion of examples of abscess or neuroses connected with the maxillæ a local source of irritation exists, such as may be found in a wisdom tooth attempting fruitlessly to take its position where there is want of space, or, more often still, in the remnant of a fang over which the gum has grown. Such errors in diagnosis are frequently made with regard to patients of strumous and scrofulous diathesis, in whom the history of the case and the swollen glands too frequently mislead the unwary practitioner. Wherever there are sinuses in connection with the glands about the jaw, search for an errant root. You may have much trouble in discovering it; but, if you be successful, its removal will not only instantly cure the patient, but prevent that terrible disfigurement which is a result of abscesses in this position. I have witnessed the cure of long-standing suppuration diagnosed as scrofulous again and again by the extraction of a root, the presence of which was unsuspected by patient or practitioner.

Finally, every surgeon practising in the country or abroad, in places where special aid is not at hand, should be able to arrest pain and disease in the teeth, at least temporarily, whilst he should have some knowledge of the treatment of the milk-teeth, which he is often called upon to remove; indeed, with regard to the latter subject, his appreciation of the simple rule, never to remove a temporary posterior molar or canine without urgent reason, would alone prevent many subsequent deformities of the permanent denture.

Think how many teeth might be saved by the aid of a little special knowledge concerning their diseases. Such knowledge would be useful to all, but especially to those who are about to devote themselves to the preservation of the health of those who maintain England's glory and good name, *per mare, per terras*. The agony which I have seen soldiers, and especially sailors, suffer from their teeth has

been terrible, and in too many cases without a chance of satisfactory aid, unless it be by the extraction of the offending organs. By such unnecessary losses men are incapacitated before their time, and it is from a feeling of pure humanity that I would insist upon the necessity of army and naval officers devoting a short period to the study of diseases of the teeth, thereby arming themselves with another weapon with which to combat pain and suffering. In future lectures, I shall hope to have opportunities of showing you examples of those direct and indirect results of dental lesion to which I have alluded to-day, whilst I shall especially demonstrate to you those operations necessary to alleviate pain or to arrest disease, whether temporarily or permanently, by more complicated means. My task will be a labour of love, if I can impress upon you the importance of my subject when considered in its highest *rapports*; whilst I shall feel that, in disseminating amongst you what little knowledge I possess, I shall be contributing in some small way towards the lightening of those burdens, and the assuagement of those many ills to which flesh is heir.—*British Medical Journal*.

Two Cases of Enamelless Malformed Teeth.

BY DR. J. V. SCHNEIDER, Wurzburg.

Examining the teeth of a patient 55 years of age, I found in place of the first left lower molar a toothlike body (Fig. 1. Natural size). It was rather loose in the lower jaw, the crown projected 4 M. M. above the gum, and was shining and yellow. On the edge of the gum itself there was a layer of dentine.

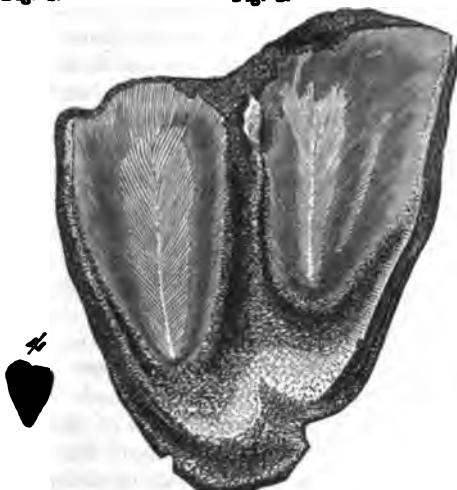
In answer to my questions the patient declared that the tooth in question had been extracted five years before, without being broken, which I found to be the case later, when she produced this tooth, as well as the others she had had extracted.

A year after the extraction of the tooth the new formation appeared, and since then had given no trouble. On examination I decided to extract it. The periosteum was somewhat thick, otherwise normal; round the neck of the tooth was a layer of dentine. Microscopical examination of a section is shown in Fig. 2. The bulk of the cementum strikes one

at once, surrounding the whole body, especially thick at the point of the fang and filling the pulp cavity. The osteoblasts were decidedly smaller than in normal cementum. The dentine tubes were normal in size and length. There was not the slightest trace of enamel.

Fig. 1.

Fig. 2.



A second case came under my observation a few days ago, in a lady aged 22 years, and was also in the position of the first left lower molar. The size was much the same; and here, also, with very strong formation of cementum and normal dentine, the enamel was wanting. Similar cases have been mentioned in this journal in 1872 and 1874.

A real third dentition is not impossible, although to establish its existence is attended with the greatest difficulty. In such a case it must be proved that it is not simply a retarded or superfluous tooth. By the phrase "third dentition" we understand an entirely separate disposition of tooth germs, distinct from the first and second dentition. The tooth germs of the third dentition must, therefore, be formed after the germinal period of the temporary and permanent teeth is completed. That teeth of the third dentition may eventually proceed from the same enamel germ, which has performed the same office in the first dentition, is admissible, only the third tooth germs must have been formed after the close of the first dentition.

We know that probably many of the recorded cases of third dentition have been mistaken for retention of the permanent teeth which were erupted very late. Even where several teeth were cut very late, we must not forget that sometimes the teeth are retarded in great numbers. Most of the recorded cases occurred in the last century, whilst newer literature, notwithstanding the study bestowed upon teeth during the present decade, has discovered no new case. We must, therefore, consider the above-mentioned instances as enamelless malformations, which have become developed from a superfluous tooth germ. In conclusion, we call attention to the scientific interest which an enamelless tooth-malformation must possess for anatomists.

Periostitis Dentalis.

By Dr. JULIUS SCHIEFF, Vienna.

From the *Wiener Medizinische Presse*.

Of all the diseases of the human organism, with the exception of epidemic maladies and caries of the teeth, periostitis will probably be found to be one of the most frequent. Even although in by far the great majority of cases an etiological cause can be discovered, it cannot be denied that in many other cases no such origin can be found, and these we refer to a predisposition to the malady. These must often be considered as the cause until the discovery of some hitherto-unobserved agent in the production of the periosteal inflammation. How this may be, whether this or that agent produces the disease, we shall not in this connection attempt to determine, for in all inflammatory affections the etiology, so long as only conjectural, plays but an unimportant *rôle*, and we have as yet no positive foundations upon which to rest.

A few etiological points in the production of dental periostitis can be stated with a degree of positiveness. In the first place, we may mention external irritants, as mechanical, chemical and thermal, whose effects are manifested in various ways; the mechanical by strokes, falls, separation of neighbouring teeth, pressure upon the alveolar process, cracking of nuts and hard biting in general; the chemical by the introduction of foreign materials such as mercury, particles

of lead, strong medicaments as creosote, tannin, arsenic paste, &c. Thermal irritation is probably the cause of the least number of cases of periostitis, for in my opinion this can only occur when a part of the neck of the tooth is uncovered by the gum and alveolar, and, even in these, the mechanical and chemical irritants are most probably the principal factors. Among the other causes may be reckoned cold, as the so-called "periostitis rheumatica"; as observed among medical men, and to a far greater extent among the laity, this explanation on the theory of rheumatism must be considered on the one hand a mantle for our ignorance, and on the other a self-delusion; so it is with dental periostitis. Among the many hundreds of these cases which it has been my opportunity to see and treat, I have never yet encountered a single case, which could be explained as rheumatic, for in all there was a palpable cause, after the removal of which the disease was rapidly brought under control and subsided.

I will not assert that there are no cases of rheumatic periostitis, but I cannot comprehend why among these hundreds of cases (many of them considered by the physicians and almost all by the patients as being the results of "cold") none such should appear. Of course there are cases in which, for example, perfectly healthy teeth are attacked by an inflammation of the periosteum, and even I have made out a periostitis of this variety, and yet in these cases it has not been cold, but the mechanical irritation exercised by some hard foreign body which has accidentally found its way into the food.

My object is not so much an enumeration of all the causes, as a precise and definite statement of the most frequent, their mode of production and their consequences, because unfortunately too little attention has been paid by physicians to the diseases of the teeth and their anæsthesia.

In order to aid to some extent in filling this hiatus in the education of our physicians, I have undertaken to add my observations to those of men whose names are well known to the public.

Beginning with the above-mentioned etiological forces, we shall again recur to the sudden changes of temperature; even if these are not beneficial to the teeth, they cannot certainly have the effects usually attributed to them. I would simply inquire how many persons during the hot

season quench their thirst by ice water or other cold beverages. If a sudden lowering of the temperature of the teeth were followed by such consequences the cases of this disease would be almost without number.

It may, of course, be replied that the symptoms of the periostitis do not manifest themselves until after the lapse of several days, when the cooling draught is long since forgotten. I can then state that sound healthy teeth may be attacked by periostitis in addition to those whose crown and pulp have been destroyed. The peridentium of such teeth and roots is no longer intact, and it is evident that these can withstand but slight injury as compared with the sound ones.

After it has several times been subjected to inflammatory diseases, the entire organism is inclined to sympathise, and by-and-bye a certain predisposition is formed, which can, however, be considered as dependent on previous similar processes.

One thing that cannot be denied, that every one has experienced in his own person, is the fact that the sudden succession of cold and heat, or the reverse, produces an unpleasant sensation, but by no means a constant damage.

Further causes of inflammation of the peridentium are toxic agencies, for instance in the use of mercurials the peridentium of several teeth may be affected. Phosphorous contributes no less to the inflammation of the periosteum of single or several teeth.

Periostitis can also, however, appear secondarily, that is, preceded by affections of the neighbouring tissues. Thus, inflammations of the pulp extend through the cavity of the root to the periosteum, or inflammation of the gums may likewise produce it.

Finally, the fact that the teeth of females, and in consequence their surrounding membranes, become diseased readily, is due to the soft substance of which they are composed, and that they contain more organic material than the male. Having examined all the essential factors in the production of periostitis dentalis, we shall now consider its clinical and anatomical course.

(To be continued.)

A Dental Dinner.

The fashion of forming associations of men engaged in similar trades or professions has become almost universal in this country. If there were only two men in the whole United States, engaged, say, in the manufacture of soapstone griddles, they would promptly form themselves into a National Griddle Association, elect themselves respectively President and Secretary thereof, and proceed to hold annual conventions for the purpose of reading essays at one another on "Grease in Relation to Griddles," and the "Past and Future of Soapstone." There is no reasonable doubt that there exists a "Peripatetic Sidewalk Dog-sellers' Association," and a "National Brotherhood of United Old Clothed Men."

Not long ago the United Druggists held their annual convention in Boston, and now the dentists belonging to the "Odontological Society" have gathered themselves together in this City. Persons who have had their teeth repaired at different intervals during the last twenty-five years cannot fail to have noticed the great progress which dentists have made in their useful but excruciating profession. A quarter of a century ago, the dentist was an athlete who removed teeth with an instrument called the turnkey, which was constructed upon the principle of a ship's capstan, and which nearly always accomplished its fiendish purpose, provided the operator was in good training, and braced himself firmly with his feet on his victim's shoulders. The protracted agony of preparing cavities for filling was accomplished by the old-time dentist with the aid of a variety of clumsy chisels and augurs, which produced upon the patient's excited brain the firm conviction that the whole interior of his person was undergoing excavation at the hands of the malevolent dentist, and that unless the bony structure of his knees should prove an impenetrable barrier, his legs would inevitably be tunneled throughout their entire length. These vigorous methods of practice have, however, been long since discarded. If you wish to have a tooth drawn, the modern dentist politely reduces you to insensibility with anesthetics, and when you awake you find that he has painlessly pulled as many teeth as time or inclination may have permitted him to remove. Of course, this easy method of tooth-pulling is open to the objection that an enthusiastic or careless dentist may pull dozens of useful teeth before the patient recovers his consciousness; but if a little care is taken to designate the condemned teeth, either by blazing them with a hatchet, or by some other simple process, the danger that the dentist will exceed his duty may be rendered very slight. An equal degree of progress has been made in filling teeth. The dentist now-a-days drills out irregular cavities with a species of circular saw driven by machinery, and when he arrives at the point of stuffing a tooth with gold foil, he sits down to his work on a piano-stool, and wields a mallet and cold chisel with a mingled muscularity and tenderness which bring tears of gratitude and admiration to the patient's eyes. Thus, by the aid of science and skill, dentistry has been so greatly improved that a man can now bear to have a friend's teeth pulled or filled with comparative equanimity.

That the members of this enlightened profession should meet together in convention is both natural and proper. That they should subsequently dine together—or, in the language of similar associations,

should partake of a banquet—is also natural, and not intrinsically immoral. Still, a banquet of dentists must be a rather ghastly affair, and one calculated to strike terror to the waiter whose mind has been left unprepared for the spectacle. To the dental mind such a banquet as that of Monday evening last must necessarily have presented itself in the guise of a competition trial of artificial teeth. Each guest undoubtedly endeavoured to test his teeth upon the toughest substances, and the innocent waiter must have wondered why so many gentlemen insisted upon calling for mince pie immediately after, or even prior to, soup. His wonder doubtless increased on hearing tooth after tooth break into fragments on the hidden reefs and boulders of the experimental pie, and on perceiving the exultation with which each possessor of unbroken teeth greeted the mishaps of his rivals. Between the courses he shuddered to see full sets of teeth passed up and down the table for inspection and comment, and when the cautious dentists with one accord changed their teeth before indulging in hot coffee, and either removed them altogether prior to lighting their cigars, or else put on old and loose sets so that they might smoke with ease and comfort, the horrified waiter probably fled howling from the banquet hall. He did not wait to hear the President propose as the first regular toast, "The Health of the Alveolar Processes," or listen to the eloquent tribute paid by some distinguished dentist to the ingenious inventor who first applied the principle of hydraulic mining to the excavation of human teeth. That these are the distinguishing features of an Odontological banquet, it is hardly necessary to demonstrate. The universally known fact that every dentist proves his faith in his own work, by wearing teeth exclusively of his own manufacture when applying for his diploma, is exceedingly creditable to the profession, and if the dentists did not display the merits of their respective teeth at a professional banquet, they would be lacking in that earnest devotion to dentistry which so honourably distinguishes them.

Royal College of Surgeons of England.

EXAMINATION FOR DIPLOMA IN DENTAL SURGERY.

February 1, 1876; 2 to 4 o'clock p.m. N.B.—The candidate is required to answer at least one of the two questions both on Anatomy and Physiology, and on Pathology and Surgery.

ANATOMY AND PHYSIOLOGY.

1. Describe the origin, course, and insertion of the temporal muscle; and give its relations and action. State the sources from which it receives its vascular and nervous supply.
2. Enumerate the glands pouring their secretion into the mouth; and describe their structure, and the nature of the secretion of each.

PATHOLOGY AND SURGERY.

1. From what parts of the jaws may exostoses grow? Describe their structure.

2. How is fracture of the lower jaw usually produced? State what parts may be broken, and how you would treat each form of fracture.

5 to 8 o'clock p.m. N.B.—The candidate is required to answer two out of the three questions, both on Dental Anatomy and Physiology, and on Dental Surgery.

DENTAL ANATOMY AND PHYSIOLOGY.

1. Describe the mode in which the temporary teeth are shed; and mention the different theories advanced to explain the process.

2. What is meant by the term "Calcification"? State the peculiarities of this process as it occurs in the formation of primary dentine.

3. What is the chemical composition of enamel? Describe its minute structure and mode of development. Describe also the histological characters of the enamel organ.

DENTAL PATHOLOGY AND SURGERY.

1. What injurious results to the teeth and contiguous structures may arise from the wearing of regulating plates and artificial teeth? How would you avoid or remedy such results?

2. Name the salivary glands. State the constituents of normal and abnormal saliva, and how the latter may affect the teeth.

3. A child, ten and a half years of age, presents himself with a general crowded state of the teeth. There is no such absolute deformity as to make immediate extraction unavoidable, but sufficient to render it almost certainly necessary at some time in the progress of the case. State what permanent teeth you would expect to find cut at the above age, and on what general rules you would proceed in the treatment of the case.

The 'Lancet' on the New Dental Society.

It would appear from a letter published in another column, that there has been a groundless assumption on the part of some members of the dental profession that the society, the contemplated formation of which we mentioned last week, was opposed to the special degree of L.D.S. This is not so. The inferior degrees to which allusion was made were those which are so often palmed upon a credulous public by advertising men. Dental surgery has made great advances of late years, and the movement now initiated should be the subject of congratulation, having such good objects in view as a closer association of the more highly qualified members of the profession, the formulation of an improved code of etiquette, the abolition of that advertising system which does so much to degrade the calling and generally the elevation of the status and *morale* of dentists. A question of considerable importance to the Royal College of Surgeons is also brought under consideration, and one which should have before now engaged its attention. It has long been felt that the conditions of the degree of L.D.S. given by the College are not sufficiently stringent to prevent the admission of men who do not or cannot adequately appreciate the bearing of their connexion with the College, or of the responsibility which that connexion implies. The degree is now given without any

guarantee that the recipient has undergone an educational training, and practically with the security of but a very little expenditure of time and labour. While some go so far as to insist that the L.D.S. should only be given as a pendant to the higher qualification of M.R.C.S., it will be generally conceded that at least a preliminary examination in general education should be imposed on all candidates for the dental diploma of the College in the same way as the test is exacted from medical students. The creation of the diploma has undoubtedly worked great good, and has enabled the medical profession and public to discriminate between well-trained and honourable practitioners and the swarm of dentists whose advertisements fill the pages of our newspapers; but the College should now go a step further, and make the licence thorough. In its own interest it should set about propounding a scheme for the better examination of dentists, which shall provide for the removal of the evil we have pointed out. It seems monstrously behind the requirements of the age that the Royal College of Surgeons of England should license men without having first ascertained that they had been educated.—*Lancet*.

Correspondence.

• We do not hold ourselves responsible for the views expressed by our Correspondents.

“VERNON GALBRAY” AND THE “DENTAL COSMOS.”
TO THE EDITOR OF THE “MONTHLY REVIEW OF DENTAL SURGERY.”

DEAR SIR.—The communication over the signature “Felix Weiss,” in your December issue, seems to demand a brief reply from the undersigned.

Its writer beginning with the statement that the *Dental Cosmos* had honoured him by reviewing his book, talks in continuance of the notice which they (?) had presented to their (?) subscribers, and of the castigation they (?) intended, etc. In the next paragraph he charges the Editor of the *Dental Cosmos* with the authorship of the review in question, and with having been actuated by unworthy motives in writing it. In the concluding paragraph, Mr. Weiss repeats his offensive imputation in the statement that the *Dental Cosmos* had gone out of its province to traduce an honourable house.

The ignorance displayed by Mr. Weiss in mistaking a communication, published in a minor department of the *Dental Cosmos* for an editorial review is no fault of mine, and his card would not have been deemed worthy of notice,

but for the impression he seeks to create that there exists a business jealousy between the "honourable house" alluded to, and that of the publisher of the *Dental Cosmos*.

To all "reasonable minds" it will suffice to say that the publisher of the *Dental Cosmos* is not its editor, and that the business relations of the two houses mentioned are entirely friendly.

I submit that it was in very bad taste for Mr. Weiss to ascribe improper motives to either publisher or editor, when the honourable house alluded to made no such charge.

The facts are, the review of "Vernon Galbray" was from a well-known and esteemed contributor, and was accorded space before I had seen the book or knew to whom reference was made in the objectionable paragraph, nor did it occur to me, as such a *ruse* is among the ordinary devices of advertisers in this country, that there was anything disreputable in making a narrative carry an advertisement in such a way that the real object of the publication should appear only in the conclusion. Such little tricks are usually considered with us proofs of originality and enterprise.

The dignified disclaimer of Messrs. Ash was cheerfully published, as also the letter of Mr. Weiss to the Editor of the *Dental Cosmos*, omitting some offensive personalities which he had no right to expect would be allowed to appear in this journal.

I sincerely sympathise with Mr. Weiss in the necessity which compelled him to acknowledge the authorship of "Vernon Galbray," but trust that in future he will practice his own teachings, and so avoid the mistake of "inventing motives" for other people.

Yours truly,

JAMES W. WHITE,
Editor of the *Dental Cosmos*.

Dental Advertising.

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

SIR,—As I see you are going into the not unimportant question of public advertising as a means of acquiring notoriety, if not practice, perhaps you can tell me who a certain Mr. Hutchings may be? He has given a testimonial to Mr. G. H. Jones, a gentleman whose name figures not only in the advertising, but also in the legal columns of the papers, vide *Daily Chronicle*, Nov. 15th. In this testimonial Mr. Hutchings calls himself "By appointment Surgeon-Dentist to the Queen." Now we all

know that Mr. Saunders is the Royal Dental-Surgeon—and therefore it would be interesting to learn who Mr. Hutchings may be (I cannot find him in the "Medical Directory"), or what Queen he is Dentist to. I should also like to know the meaning of the letters M.D.S., that Mr. Ward, a Dentist in Oxford-street, who exhibits a face with opening jaws, and advancing and retiring teeth, puts after his name. I am sure all the profession should be grateful to you for taking up this matter so warmly and ably.

Yours obediently,

London, Feb. 10, 1876.

L.D.S., R.C.S.

** Our correspondent will see we have alluded to Mr. Hutchings elsewhere, and like himself "pause for a reply." Of the letters M.D.S. we can give no explanation; they certainly do not refer to any qualification recognised in this country.—[ED. M.R.D.S.]

TO THE EDITOR OF "THE MONTHLY REVIEW OF DENTAL SURGEY."

SIR,—Permit me to say a few words in favour of our style of "Advertising," a style which in a modified, or modest, form might be productive of great good to the ignorant and gullible public. "Tooth-powder," as a medium of advertising one's self, if an honest compound, not "warranted to cleanse the filthiest teeth, cure tooth-ache, arrest and prevent decay, and impart a delicious perfume to the breath," but one prepared after the prescription or receipt of an intelligent L.D.S., D.D.S., or "Dentist by appointment," fully comprehending what constitutes a really good dentifrice,—such as its astringent disinfectant, cleansing, and polishing properties,—such a medium is as unobjectionable as some that are recognised as professional.

As to the "profits," until the people are educated by our profession up to a higher standard of *oral* cleanliness, I do not apprehend that the advertiser will become a "bloated bondholder" from the royalty arising from its sale.

Again, who can deny that a really superior dentifrice is much needed by the people and that it would be instrumental in "preventing the decay," and consequent premature loss of thousands of teeth.

Doubtless the frequency of this demand for *their* excellent tooth-powder, on the part of *their* patients, has prompted those who are now writhing under your lash, to commit this so-called unprofessional act, but to my mind is only unprofessional as to "the way of displaying qualifications."

The modification that I would suggest is not that the "qualifications" be abandoned, but that no address be given; in which case the charges of "seeking to increase reputation" would be robbed of half its force, and we know that the "pecuniary profit" is but light, if any.

A clergyman being asked how he could permit his daughters to dance, replied to his interrogator that he did not believe in giving the devil sole control of all the amusements of this life. Why should not dentists of good professional standing, those who wish to do so, present a dentifrice to the public, instead of leaving it entirely in the hands of charlatans?

Being an "American Cousin," your *highly laudatory* words grated

harshly on my, perhaps, too sensitive ear, especially when I consider that the frank acknowledgment that "our American cousins seem to head us here as elsewhere," has never been heard except under peculiar circumstances, similar to the present.

In this case the "poor American" cannot bear away the palm nor "head us," for fine *quality* has greater weight and influence than gross *quantity*, and in this instance, at least, our British cousins are entitled to all the *superiority*. F. M. G.

The Dental Profession.

SIR.—My attention has been directed to a notice which appears in your journal of to-day, of a meeting of some surgeons practising dental surgery, and at which it was unanimously constituted a Society. There is one paragraph in that notice which, as it reads to me, may be possibly misunderstood, for, worded as it is, an idea might be conveyed that the possessors of the L.D.S. diploma, or certificate of competency granted by the Royal College of Surgeons, are classed equally with those persons who possess no qualification whatever. This, I can safely say, was not the intention of any one of those present on the occasion referred to; and, moreover, I feel satisfied that the writer only alluded to spurious degrees, and never intended to cast a slur on a measure which at the time was urgently needed, and which, in its results, has proved highly beneficial as regards the education of those who have passed the ordeal and entered the ranks of dental practitioners. Considering the state of the profession and the violence of opinions existing at the time, the promoters of the scheme, after much earnest consideration, came to the conclusion that its fulfilment offered the only path by which educational improvement and unanimity could then be reached. Whether the standard of qualification is not now capable of still further improvement is another question. As regards the new society itself, a few words will suffice here—the honour, character, social status, and advancement of the dental branch of the profession are the sole objects in view.

I am, Sir, your obedient servant,

January 25th, 1876.

ONE OF THEM.

[To the Editor of "The Lancet."]

THE SAUNDERS SCHOLARSHIP.

We are requested by Mr. Ibbetson to correct a mistake that appeared last month in the list of contributors to the Saunders Scholarship Fund. Mr. Hugo's initials should be S. G. J. instead of H. G. I.

THE DENTAL SURGEONS ATTACHED TO THE
VARIOUS HOSPITALS OF LONDON ATTEND AS
FOLLOWS:—

Dental Hospital of London	-	-	Daily, 9 a.m.
National Dental Hospital	-	-	Daily, 9 a.m.
Charing Cross	-	-	Mon., Wed., Fri., 9 a.m.
*German	-	-	Thur., 10 a.m.
*Great Northern	-	-	Wed., 2 p.m.
Guy's	-	-	Thur., 12 noon.
King's College	-	-	Tues., Fri., 10 a.m.
London	-	-	Tues., 9 a.m.
Middlesex	-	-	Daily, 9 a.m.
St. Bartholomew's	-	-	
St. George's	-	-	Tues., Sat., 9 a.m.
St. Mary's	-	-	Wed., Sat., 9 a.m.
St. Thomas's	-	-	Tues., Fri., 10 a.m.
University College	-	-	Wed., 10.30 a.m.
*West London	-	-	Tues., Fri., 9.30 a.m.
Westminster	-	-	Wed., Sat., 9.15 a.m.

Hospitals marked * have no school attached to them.

DENTAL HOSPITAL OF LONDON.

CASES TREATED FROM JANUARY 1ST TO JANUARY 31ST, 1876.

Extractions.	Children under 14	-	-	-	-	369
	Adults	-	-	-	-	530
Under Nitrous Oxide	-	-	-	-	-	190
Gold Stoppings	-	-	-	-	-	216
White Foil ditto	-	-	-	-	-	29
Plastic ditto	-	-	-	-	-	188
Irregularities of the Teeth treated surgically and mechanically	-	-	-	-	-	43
Miscellaneous Cases	-	-	-	-	-	210
Advice Cases	-	-	-	-	-	117
					Total	- 1892

JAMES MERSON, *Dental House Surgeon.*

The following Publications have been Received:—The Dental Register.—Johnston's Dental Miscellany.—Le Progrès Dentaire.—Le Progrès Médicale.—The Dental Cosmos.—The Pennsylvania Journal of Dental Science.—The Missouri Dental Journal.—Deutsche Vierteljahrsschrift.—Correspondenz Blatt.—Boston Journal of Chemistry.—The Dental Advertiser.—The London Medical Record.

TO CORRESPONDENTS.

ALL communications intended for the Editor should be addressed to the care of Messrs. SMITH, ELDER, & Co., 15 Waterloo Place, Pall Mall. All inquiries respecting Advertisements and Subscriptions should be sent to Mr. GEORGE BUTCHER, 4 Crane Court, Fleet Street, E.C.

THE MONTHLY REVIEW or DENTAL SURGERY.

No. X.

MARCH, 1876.

VOL. IV.

Real Progress.

Amidst all the agitation that is now taking place in the Dental Profession, it is a source of unqualified pleasure to find that the subject of Dental Education is occupying a most prominent place. Without attracting as much public attention as some other matters, it is yet steadily advancing, and the decision of the Royal College of Surgeons that, after October 1st, 1877, the Preliminary Examination in Arts shall be compulsory for every Student taking the Dental Diploma of the College, is by far the most useful measure of advance and reform that has taken place during the last ten years.

Since the establishment of the "MONTHLY REVIEW OF DENTAL SURGERY," we have steadily and persistently advocated the compulsory examination in Arts ; and it is therefore with very great satisfaction that we find a measure that we have so long pressed upon the consideration of the College finally adopted.

There is no question that at some future time the Dental Profession will be in a position to demand from the Legislature the restriction of Dental Practice to properly qualified practitioners, but that day is certainly distant.

Still, the first step towards the attainment of such an end is the great impulse that will be given to Dental Education by the recent action of the College of Surgeons. When Dental Surgery, as a speciality, is brought up to the same educational standard as General Surgery, Dental Surgeons will not only be able to ask, but will be in a position to demand the like privileges and protection as their fellow practitioners in the domain of Medicine.

In the early history of a profession the educational standard must be the first step towards corporate rights. When a high degree of technical knowledge is possessed by the members of any body, legislative protection and prohibitory powers over the unqualified must follow as a matter of course. Hence it is that we consider the examination in Arts being made compulsory is a far more certain step towards Dental Reform than the endeavour to register everyone calling himself Dentist, irrespective of social position or professional competency.

The Month.

THE "LANCET" AND THE ODONTOLOGICAL SOCIETY.

We are glad to see that Mr. Turner, in a very able and spirited manner, has vindicated the position of the Odontological Society from the pseudo-editorial attack made upon it by the *Lancet*. That journal is generally well informed on the topics of which it treats, it is therefore very unfortunate that it should be found tripping on a question of so much importance to the Dental Profession as the functions of the Odontological Society.

THE FUNCTIONS OF THE ODONTOLOGICAL SOCIETY.

It is satisfactory to find that we are not singular in our opinion that the Odontological Society is bound to exercise its political functions. The letters that appear in our correspondence column fully testify to the importance of the question, and the light in which it is regarded by many members of the Profession.

THE MANCHESTER REFORM PARTY.

We hear on good authority that a large number of the practitioners in Manchester and Liverpool are by no means prepared to allow the recent action of the Odontological Society to pass by without protest. We trust, however, that personal feeling will not be permitted to take the place of public policy.

LIVERPOOL DENTAL HOSPITAL.

We are quite sure that the provincial members of the profession will learn with satisfaction that the Council of the Royal College of Surgeons has recognised the practice of the Liverpool Dental Hospital as qualifying for the Dental diploma. Wherever there is a provincial Medical School, we should also have a recognised Dental Institution. It is manifest that there can be no shorter road to Dental Reform than the fullest possible opportunity for obtaining Dental education.

NATIONAL DENTAL COLLEGE.

We understand that the opening Session of the National Dental College will (subject to the approval of the Royal College of Surgeons) commence on the 1st of May. We believe it is the desire of the promoters of this institution to do all in their power to assist in the effort now being made to raise the standard of Dental education. With this object in view, special arrangements have been made for holding classes in the College to prepare students for the preliminary examination in Arts. Mr. Oakley Coles will temporarily act as Dean.

THE NEW DENTAL SOCIETY.

We understand that the Society of Surgeons practising Dentistry is formally founded, Mr. Cartwright being the first President, and Mr. Salter, Vice-President. We wish it a useful and prosperous career.

ODONTO-CHIRURGICAL SOCIETY.

This society opened its Session on Monday, 13th March, with a paper by Mr. Campbell, L.D.S. (Dundee), "On the Preparation of the Mouth for Artificial Dentures." The annual dinner of the members of the society, and L.D.S.'s, took place on the same evening at the Douglas Hotel, Edinburgh, with Mr. D. Hepburn, L.D.S., in the chair, Mr. Williamson, L.D.S., croupier.

MR. GEORGE WARD.

We have received a long letter from Mr. George Ward, of No. 188 Oxford-street, in reply to our correspondent, "L. D. S.," whose note appeared last month. Had Mr. Ward's communication been of the

same length as "L. D. S.'s," we would gladly have inserted it; but, as it refers at considerable length to other matters, he must be contented with our publishing only so much of it as deals with the question asked by L. D. S.—

"My attention was drawn for the first time last Saturday to a letter in the *MONTHLY REVIEW OF DENTAL SURGERY* of the present month, wherein my name rather prominently figures, and wherein, also, a certain mysterious "L. D. S.," that modern, very modern, and *rara avis* of dentistry, calls for an explanation of the initials M.D.S., supposed to have been used by me. All I have to say to that is I know not anything whatsoever of them, never having used such."

We referred Mr. Ward's letter to "L. D. S.," who writes:—"If I have done Mr. Ward any injustice I much regret it. I spent nearly a quarter-of-an-hour admiring his very ingenious advertisement, and most certainly was under the impression that I also saw M.D.S. somewhere about the place."

THE ANNUAL DENTAL DINNER.

The following Gentlemen constitute the Committee of the Annual Dental Dinner:—

John Tomes, Esq., F.R.S.	{	For London.
Edwin Saunders, Esq.		
James Parkinson, Esq.		
G. Buchanan, Esq., of Glasgow.	{	Provincial Representa- tives of the three Kingdoms.
J. E. Palmer, Esq., of Peterborough.		
J. O'Duffy, Esq., of Dublin.		

And the following office-bearers for the time being:—

The Chairman of the Committee of Management of the Dental Hospital—Campbell de Morgan, Esq., F.R.S.

The Hon. Sec. to the Dental Hospital—G. A. Ibbetson, Esq.

The Dean of the School—T. A. Rogers, Esq.

The President of the Odontological Society—C. Vasey, Esq.

The Senior Officer of the Medical Staff of the Hospital—Thomas Underwood, Esq.

The Chairman of last year's Dinner Committee—C. J. Fox, Esq.

C. S. Tomes, Esq.	David Hepburn, Esq.
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Ashley Gibbings, Esq.	James Merson, Esq.
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W. F. Forsyth, Esq.	Frederick Canton, Esq.
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G. Parkinson, Esq.	
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This Committee has elected Mr. James Parkinson as their Chairman, and Messrs. J. Merson and G. Parkinson as Hon. Secretaries.

It has been determined to hold the dinner at St. James's Hall, on March 16th, 1876, at 6.30 o'clock. Tickets to be one guinea each, steward's fee five shillings.

On the Microscopical Structure of Fossil Teeth from the Northumberland True Coal Measures.

By W. J. BARKAS, M.R.C.S.E., L.R.C.P., Lond.

CHAPTER XX.

(Continued from page 398.)

Genus.—*Rhizodopsis* (Huxley).

The remains of this genus are very prolific in the Northumberland Coal Measures, the fishes being occasionally obtained intact; we are, therefore, quite *au fait* with regard to the general characters of the genus founded by Professor Huxley. There are only two species that have been named, *Rhizodopsis granulatus* and *R. sauroides*; the latter is the variety that is found in this district, and it is to the teeth and jaws of that species that I shall devote this paper; in fact, as far as my knowledge extends, only the scales of *R. granulatus* are known. In the "Quarterly Journal of the Geological Society of London," Volume XXII., is an excellent description of the external characters of this fish by Dr. Young, and in the "Transactions of the Northumberland and Durham Natural History Society," Volume III., some further details are given by Messrs. Hancock and Atthey; Mr. T. P. Barkas, F.G.S., also gives a slight sketch of the different parts, illustrated by lithographs, in his "Coal Measure Palaeontology;" this is all the direct literature we have at present concerning this genus externally, but the microscopical structure of the bones, scales, and teeth has not been much dwelt upon; Mr. Atthey and Mr. Barkas, however, make some slight reference to it. Professor Owen has indirectly given some excellent descriptions and illustrations of the histological characters of these teeth in his "Dental Characters of Carboniferous Fishes," for the following supposed new genera and species therein mentioned are undoubtedly teeth of *R. sauroides*, a fact first pointed out by Messrs. Hancock and Atthey; they are *Dittodus parallelus*, *Ganodus Craggesii*, *Characodus confertus*, and *Gastrodus praepositus*; the last named the Professor considered to be a Batrachian. Professor Williamson has detailed the minute structure of the scales in "The Transactions of the Philosophical Society for 1849," under the designation of *Holoptychius sauroides*, and Mr. Salter figures similar scales in the third part of 'The Iron Ores of Great Britain' in "The

Memoirs of the Geological Survey," as scales of *Rhizodus granulatus*.

Before entering into the external and microscopical characters of the jaws and teeth, I shall give a brief *résumé* from the works of the above authors and from my own observation of the generic characters of these fishes. They vary very much in length; according to Dr. Young, from two to fifteen inches, but their average length is about five inches. I certainly have never seen any measuring either of the extremes mentioned; five inches is, however, about the average length of my specimens. Their greatest depth is at the pectoral arch, and from this point the body tapers towards the caudal extremity, the head is depressed, orbits placed well forward; gape of jaws rather wide; maxilla in one piece and furnished with small conical teeth; mandible and premaxilla contain two rows of teeth; principal and posterior jugulars, but no trace of lateral or median plates; three occipitals; paired fins subacutely lobate; two dorsal fins; dorsal and ventral fins have two rows of fulcral scales, similar to those in *Megalichthys*; tail heterocercal; scales cycloidal, but they vary from an orbicular to an elongate-cordate form in different specimens, they also differ much in size, from one quarter of an inch to one inch; the centre of the scale is occupied by a small raised boss; scales and head-bones sculptured; vertebræ numerous and completely ossified. From this *résumé* it will be noticed that the fish possesses all the characters ascribed to the *Cycliferous* division of the *Glyptodipterini*, and it is well that we have thus been able to establish the position of this genus, because none of the other genera that I have placed in this family have been found intact, but their detached scales, jaws, vertebræ, &c., are very closely allied to those parts of *Rhizodus*.

The maxilla (fig. lxxxii.) is an exceedingly thin bone, and quite flat; it approaches very closely to the form of the maxilla of *Megalichthys*, being very narrow in front and suddenly bulging out behind; these two parts occupy about equal parts of the bone. The superior border of the anterior narrow extremity runs almost parallel with the alveolar border; the superior margin of the dilated extremity rises abruptly from the narrow portion, then, describing a strong curve, it bends suddenly towards the posterior articulation, where it terminates in a rounded extremity; instead of being curved this border is, in some specimens, rather pointed. It

is said by Mr. Atthey that an articulating process springs from the superior border of the narrow portion of the maxilla, but I have never been fortunate enough to see it. The inferior, or alveolar border, is straight (in fig. lxxxii. it has been distorted), and bears one row of small conical teeth, which are, as a general rule, arranged at very regular intervals, but frequently they are irregularly placed in pairs, as though they have been crushed together during development. It was upon such a specimen that Professor Owen founded his supposed new species, *Dittodus Parallelus*. The external surface is covered with numerous short, fine, wavy ridges, which course about in all directions, giving the surface a reticulated aspect; in many places this surface is minutely tuberculated, the tubercles occasionally running together to form a ridge. The internal surface is smooth, so much so, in some examples, as to have the appearance of being enamelled, but such a coat is never present on that aspect, nor have I detected any such layer on the external surface. The size of the maxilla varies very much, the largest specimen in my possession measuring one inch antero-posteriorly.

The premaxilla (fig. lxxxiii.) is long and narrow, and is a thicker and stronger bone than the maxilla; it is broader anteriorly than posteriorly, and is also thickest at that extremity. The superior border gently curves downwards from the anterior extremity towards the posterior end, where it forms a point with the inferior margin. The alveolar border is straight and continuous with that border of the maxilla when they are *in situ*. It is furnished with a regular row of small teeth along its whole extent, and near the distal extremity is situated a single laniary tooth, but between this tooth and the articulation there are one or two small teeth; this laniary tooth is placed more internally than the serial teeth. The external and internal surfaces correspond to the same aspects of the maxilla. The longest premaxilla that I have examined measured two and a-half inches. Mr. Atthey has described and portrayed a premaxilla in the Transactions of the Tyneside Naturalists' Field Club, volume VI., as a jaw of *Holoptychius*, and Professor Owen has founded *Ganolodus Craggesii* upon a distorted specimen. The mandible (fig. lxxxiv.) bears a slight resemblance in its outline to the premaxilla, being a long narrow bone, but it may be distinguished by its greater size and strength, and even by its form, when found perfect, for it does not termi-

nate in a point posteriorly. The anterior portion of this jaw is much thicker than the posterior, and has a beautifully rounded contour; the posterior extremity is more square and irregular. The inferior border runs nearly parallel with the alveolar margin, and is slightly wavy. The superior margin is supplied with two sets of teeth, the external row being formed of a great number of small teeth, and the internal of from four to five laniary teeth arranged at very regular intervals; the drawing I have given shows four such teeth, and Mr. Atthey has described a mandible bearing five; the anterior laniary tooth is situated, like the single tooth in the premaxilla, sufficiently far from the symphyseal extremity to allow one or two small teeth to be interposed. The external surface resembles that surface of the maxilla in its ornamentation, but there is, perhaps, a greater tendency towards tuberculation. The longest mandibular bone in my cabinet measures three inches.

The teeth are, we have seen, of two sizes, but in all other respects they are in agreement; they are conical, terminate in a sharp point, and between the base and the apex they have a slight curve; the base is slightly plicated from the infolding of the dentine peculiar to this family of fishes; the external surface is smooth and enamelled, but in most cases the lowermost portion of the tooth is covered with strongly marked longitudinal striae which divide and subdivide as they proceed towards the apex, the branching striae inoculating somewhat freely. The small teeth of the premaxilla and mandible are sometimes crushed together with those that I referred to in the maxilla.

The microscopical appearances of these teeth have been very fairly described by Professor Owen, though, as I have said, his descriptions applied to what he considered to be new teeth. A vertical section of any of the jaws of *Rhizodopsis*, taken through the centre, will show the mode of the termination of the teeth in the bone substance, the structure of the bone, dentine, and enamel, but it is not probable that the true form of the tooth or pulp cavity will be obtained on account of the curvature of the teeth, a special vertical section must be made for the purpose of examining the two latter characters.

The bone, when examined in such a section, "shows plainly the medullary or Haversian canals, the laminae, and the intervening lacunae or bone-cells, with their radiating

tubuli; all in proportion and pattern according to the Batrachian type, and herein very closely resembling that in the *Parabatrachus* (?) of the Carlisle coal, and the *Dendrerpeton* of the Nova Scotia coal-fields. As the Medullary canals are more curved and irregular at and near the alveolar part of the jaw-section, the laminæ partake of such character, and the bone-cells are arranged along similar irregular curved lines: here the bone-cells show a long diameter of $\frac{1}{16}$ of an inch, a short diameter of about $\frac{1}{32}$ of an inch. In the lower part of the jaw the medullary canals are chiefly longitudinal, and the bone-cells lie with their long axes therewith parallel. At this part of the jaw-section, the bone-laminæ alternate with medullary canals or vacuities, of similar or greater vertical extent, both affecting the longitudinal course: some of the laminæ have not more vertical thickness than suffices for a single bone-cell, or two. In these lamellæ the line of section through the bone-cells shows their flattened sides to be parallel with the periphery of the longitudinal canal, and their longer diameter is in the direction of the length of the canal: their shorter diameter is less than in the bone-cells exposed by the more oblique sections of the more irregular alveolar canals; for whilst the long diameter of the lower or longitudinal bone-cells may be $\frac{1}{16}$ of an inch, the short diameter is frequently $\frac{1}{32}$ of an inch: but in no instance do the bone-cells present that extreme length which characterises them in the recent and extinct Sauroid fishes. From the foregoing particulars of structure I infer that we have in *Gastrodus* evidence of a minute hair-breathing Batrachian." This is Professor Owen's description of the bone tissue of *Gastrodus prepositus*; and it will be noticed that he compares it with the structure of two supposed Batrachians. Now one of these, *Parabatrachus*, I mentioned while speaking of *Megalichthys Hibberti* was the inner surface of a maxilla of the fish, and not a Batrachian at all, therefore the comparison is against Professor Owen and in favour of the so-called *Gastrodus* being piscine; at any rate, the quotation I have given is exactly the description of the osseous structure of a jaw of *Rhizodopsis*; but the bone tissue of this fish varies in its characters according to its size and age, for in small or young fishes the lacunæ may only measure $\frac{1}{32}$ of an inch in length, or there may not be any, and it was from such a specimen that the osseous tissue of *Dittodus parallelus* was

detailed. While referring to these false genera of Owen, I may as well finish those whose bone-structure is similar to that of *Rhizodopsis*. *Characodus confertus* is merely a jaw, probably a premaxilla, of *Rhizodopsis* from which the teeth have been ground or broken away from their sockets. I have a beautiful section of a premaxilla that exhibits all the characters ascribed to *Characodus* in one-half of its length, while the other moiety possesses the teeth in a greater or less degree of perfection.

The teeth are composed of dentine, covering which externally is a thin layer of ganoine or fish enamel. "The dentinal tubules (Owen on *Gastrodus*) have a diameter of $\frac{1}{1000}$ of an inch, with intervals of from three to four of their diameters. Throughout three-fourths of the crown, from the base, they present a primary curve gently concave pointward, extending to within one-fourth of the periphery of the dentine, when the direction of the branches they there resolve into affects the opposite curve: their general direction is outward, and a little upward, changing gradually when near the apex to the vertical position; but some of the tubuli near the apex make a strong and short curve, concave pointward, and are then continued vertically." In *Dittodus* he states that the first primary curve of the tubules is convex towards the apex; but this does not show any difference in the genera, because in my sections of *Rhizodopsis* I find the tubules sometimes presenting the first primary curve in one direction and sometimes in the other, and occasionally they run directly at right angles to the periphery; nor do the diameters of the tubules maintain a standard of $\frac{1}{1000}$ of an inch, they are sometimes as small as $\frac{1}{1500}$ of an inch.

"Each tooth (of *Gastrodus*) is attached to a low process of the alveolar border, which is hollow or cylindrical, with the dentinal base of the tooth inserted into the mouth of the cylinder; and the dentine is thinned off as it descends, adhering to the inner surface of the process." This description applies solely to the small teeth of *Rhizodopsis*, for the laniary teeth are inserted into the jaw in the same manner as are the teeth of *Megalichthys*, so it will not be necessary to enter into any detail concerning its roots. There is one point, however, in which the roots of the teeth of these two fishes differ, the roots of *Rhizodopsis* do not blend with the osseous tissue, but terminate abruptly.

A transverse section through the body of a tooth shows that it is circular in outline, and that the pulp cavity corresponds with the external contour; a similar cutting of the base presents the convoluted appearance exhibited in fig. lxxviii., an illustration of the plicated base of *Megalichthys*.

The enamel is a very thin layer, and it does not present any apparent structure, being perfectly clear and transparent when examined in section. This coal is just as often wanting as not, the teeth situated in the same jaw differing in this respect, some being enamelled and others not. This absence of the enamel is not a result produced by the operation of grinding the section, but, in all probability, it was caused by excessive use during life.

Upon Artificial Disfigurement of the Teeth among Different Nations.

ANTHROPOLOGICAL SOCIETY, Göttingen,
July 17, 1875.

Herr von Ihering, after a brief sketch of the principal artificial disfigurements of the teeth in use among different nations, partly for the requirements of their health, partly from hurtful toilet operations, spoke as follows:—

The disfigurements of the teeth are substantially of three kinds: 1st. Painting the teeth with red or black colours (Bornu Birma). 2ndly. Knocking out one or more of the incisors in the upper or lower jaw, practised among certain tribes in Australia and Central Africa. 3rdly. Mutilation of the form of the tooth whilst preserving the tooth itself. Many tribes from the interior of Africa cut the incisors with the chisel in such a manner that they are sharpened to a point, or so that the point comes in the centre of each incisor, or by apparent prolongation of the edge, on one side or both, they are double pointed.

In the islands of the Malay Archipelago we find filing between teeth (almost always regularly coloured by betel-nut-chewing) in two typical forms:—

1st. Removal of the enamel from the entire front surface of the crown of the incisors by horizontal filing and polishing, a kind of mutilation characteristic of the Malays of the East Indian Archipelago.

2nd. Filing in such a manner that the enamel is removed from the front surface with the exception of a three-sided portion, of which one side represents the incisor. The tooth is generally so pointed from the removal of the side part, that the remaining enamel of the tooth has a rhombic form. This form is only found upon four islands, Java, Bali, Madura, and Celebes, and has not been observed until quite recently, for Virchow and A. B. Meyer considered the pointed filing of the teeth the characteristic of these islands. The Malay skull, mentioned by Virchow in the Wiesbaden collection, belongs to the same group. Meyer's idea that this second form of filing occurred amongst those aborigines fallen into slavery in the Mentavey island is most improbable, as Von Ihering had met with this example in entirely separated collections, in all of which these four islands were given as their home.

We must, therefore, conclude that these deformities are, or have been, native to these islands, although at present no conjecture has been brought forward to which nation it is peculiar, or whether it is a sign of position in life.

Correspondenz blatt fur Anthropologie, Ethnologie und Urgeschichte, October, 1875.

VIERTELJAHRSSCHRIFT.

A Case of Dysmenorrhœa Cured by the Extraction of a Tooth.

By WLADYSLAW ZICLINSKI, Warsaw.

About eight months ago a young married woman, about 20 years of age, delicately built and ailing, came to consult me. She complained of toothache in the lower jaw, which arose from a wisdom tooth. Upon examining the mouth and teeth, I found no reason for such pain, except that the tooth in question was not fully erupted, and seemed to have scarcely room enough. Under strong pressure it seemed sensitive.

On the other hand, it was perfectly sound, white as ivory, no spot whatever, and the temperature of the face was normal; neither the face nor gums were swollen. I decided to incise the gum over the tooth, as it was more or less tense. As the tooth also was very slightly tender

under finger pressure, I ordered a leech to be put to the gum near the tooth.

The patient did not like my advice, and besought me to take the tooth out. She remarked that the tooth had given her pain for months. As the tooth had grown somewhat irregularly, and might be more troublesome than useful when fully erupted, I allowed myself to be persuaded to follow the patient's advice, and agreed to the operation. The tooth was extracted, and the patient left me.

The next morning early I was awoke by the husband, who begged me to come immediately to his suffering wife. I went directly and found my patient in bed, with a pale anxious countenance, and a pulse up to 120. Slight parotitis had occurred, and irritation in the throat. In answer to my question what was the matter with her, she replied that her throat hurt her and she could not swallow. She feared that she would be choked by any further swelling. Of course I soothed the patient, and told her to keep in bed. I ordered tincture of iodine to be painted over the parotid, and prescribed a borax gargle. On leaving, I was called back by the husband, who told me that his wife wished to ask me something. She then asked me if she could use the prescribed medicine, as she had suffered from dysmenorrhoea for some months very slightly, but the previous night menorrhagia had come on. Of course I let her use what I had previously ordered, and insisted on her keeping her bed. I advised her to take cooling acid drinks, and should the flow increase or continue, to call in medical assistance.

On the second day I again visited the patient. I found her in bed, pale but cheerful; I advised her to still keep in bed, and to endeavour to avoid all mechanical movement or physical excitement. I then ordered continued use of the gargle, and again painted the parotid, which was not so swollen. The patient had not had recourse to medical advice. The flow had very much decreased, and took the usual cata-menial course.

Since this occurred I have frequently seen the patient, and always receive a satisfactory account of her health. Since the tooth was extracted, menstruation has been regular.

I have described this case, as I have not read of anything similar. In one of Professor Albrecht's (p. 126, vol. 2) I have read that exactly opposite results arose. Professor Albrecht quoted the observations of Dr. Lieber. Lieber mentions

that in the case of a married lady, 30 years of age, for whom he extracted a tooth during the menstrual period, the flow was arrested, and in the place of it a violent bleeding of the alveolus occurred, which lasted twenty-six hours. Seeing, therefore, the case observed by me was exactly the reverse, I wished to call the attention of my colleagues to it.

VIERTELJAHRSSCHRIFT.

A Dental Register.

By JAMES STOCKEN, L.D.S., R.C.S., Assistant Dental Surgeon to the National Dental Hospital.

Having been requested by you to furnish particulars of my "model register," I have now the pleasure of doing so.

I have had the plan in operation more than a year, and can testify to its advantages over all others with which I am acquainted. It had long appeared to me there was wanting some simple arrangement of this kind, whereby we might register the particulars of our mechanical cases, prevent frequent communications with our assistants relative to the work to be done, avoid misunderstandings as to the instructions given or implied, also guard against any error arising as to the right number of the case, and last, but not least, effect a saving of valuable time. In the compilation of my register, these conditions I have endeavoured to fulfil, and should my professional brethren take that view of the matter, I shall soon place the register within their reach.

By reference to a blank sheet of the register, it will be observed in the first line provision is made for the consecutive number of the model, the colour number (to designate which I make use of Ash's shades) and the date on which the impression is taken.

2nd line—For name and address of patient.

3rd line—For particulars of case as regards material, etc.

4th line—A compound line for designating the number and position of the Teeth required, also the kind of Teeth, these being indicated by characters thus—

V Vulcanite.

I Flat.

O Tube.

It will be observed I have selected letters corresponding to the initials of the Teeth, thus: M. Molars, B. Bicuspid, etc., etc.

5th line—For date, etc., when case will be required for trying in.

6th line—Number of Teeth:

7th line—For date, etc., when case will be required finished; also for charge to patient, this being inserted in cyphers, and in the duplicate omitted altogether.

These duplicate sheets (250 in number) are bound up in the form of a book, with an alphabetical index. In this index the name is entered, and in same line the number, so that the case can at any moment be referred to without any trouble whatever.

Periostitis Dentalis.

By Dr. JULIUS SCHEFF, Vienna.

From the *Wiener Medizinische Presse*.

(Continued from page 418.)

The peridentium is an exceedingly vascular membrane, and therefore very liable to inflammation. In periostitis we recognise three different stages. The first stage is characterised by a feeling of dulness, and especially by the apparent lengthening of the affected tooth. Of whatever little value both these symptoms may be in a scientific aspect, they are always present in teeth affected by periostitis, and may be considered as the most important and characteristic symptoms of the beginning of this disease. After a short time, changes in the gums appear; they become swollen and of a dark red colour. At this stage the periosteum of the affected tooth is reddish, can be torn off in shreds, and under the microscope shows an increase of elements. Should there be no retrogression of the inflammation, it passes on into the second stage, which is characterised by the extension of the inflammation from the peridentium to the membrane lining the root cavities. At the apex the periosteum is loosened by the exudation on each side; the tooth becomes longer and looser as it is pushed upwards out of the alveolar depression. The swelling of the surrounding soft parts increases, as also the sensitiveness, increased especially by pressure upon the gingival mucous membrane; if there be no decrease of the symptoms just mentioned, the third stage appears, characterised by the transformation of the increased

elements observed in the first—the formation of pus in the exudative sacs. Besides, small granular cells forming the connection between these are formed. The swelling and pain have now attained their maximum; the latter gradually decreases, and the former remains until a means of exit for the pus is found. This flows either through the cavity of the pulp, caused by some pre-existing caries, and is discharged in this manner, or after a longer time, alongside the loosened tooth, or is finally removed artificially.

The result, whatever it may be, depends upon the stage of the inflammatory action. So long as no suppuration has taken place, a *restituto ad integrum* may be hoped for. If pus be already formed, the changes affect the periosteum, both of the tooth and the jaw-bone.

The periosteum is then thickened and can but very seldom re-adapt itself to the tooth; the latter remains in its loosened condition; the pus may after a time be re-absorbed, as also the membrane by which the root is surrounded; or fatty metamorphosis may take place. The tooth itself frequently atrophies with a hypertrophy of the cement substance; an absorption of the root occurs, or the tooth may itself die (as shown by its loss of colour and looseness) and fall out. Other very frequent terminations are fistulæ and necrosis, the consideration of which, however, will necessitate a special article.

In periostitis, accompanied by inflammation and suppuration of the surrounding soft structures, not only the affected organ suffers, but the entire system sympathises. Fever, loss of appetite, sleeplessness, the common companions of periostitis dentalis, are the causes which most frequently compel the patient to seek the physician's aid.

As to therapy, I shall endeavour to confine myself to the most practical points.

The fact is, we have no radical means upon which we can rely to cut short the affection; nothing then remains but to employ those remedies which will, to some extent at least, mitigate the severity of the symptoms.

Whatever be the course adopted, it should be done exclusively during the first and second stages; during the third stage their effect is entirely null.

In the first stage I have a decided preference for the employment of cold both in the form of compresses, and internally by small pieces of ice, frequently repeated. This

is to be continued until the subsidence of the inflammatory symptoms or until there are positive indications of the commencement of the second stage.

If the pain and swelling increase, notwithstanding the cold, it is proof that the inflammation cannot be prevented, and we must then do our best by means of warmth to hasten it. This may be done by fomentations, cataplasmas, and internally by various aromatics in the form of decoctions, such as the following:—

B Decoc. althaea, 3*vi.*

Tinet. opii, 3*ss.*

Syr. althaea, 3*ss.*

M.S. As a mouthwash.

Of this the patient may take a mouthful every quarter or half-hour, and let it remain for a few seconds. The temperature of this decoction must be regulated to a great extent by the taste of the patient.

If we find the slightest trace of fluctuation (proving the ingress of the third stage), an immediate incision, long and deep, must be made; we should not wait until the tumour had become softened, or has opened.—*British Medical Journal.*

Odontological Society of Great Britain.

ORDINARY MONTHLY MEETING, FEBRUARY 7TH, 1876.

C. VASEY, Esq., President, in the Chair.

The usual preliminary business having been disposed of,

Mr. C. S. TOMES announced the contributions to the museum. Mr. Saunders had sent a series of lower jaws, cut in sections, showing the relation of the teeth to the alveolar processes; also a plaster model of the head of a microcephalic idiot. Mr. Gaine, of Bath, presented a specimen of phosphoric necrosis of the lower jaw, removed after death, and also a dilacerated tooth. The pharyngeal teeth of a large Indian fish had been sent by Mr. Brand, of Exeter. Mr. Harding had presented a specimen of salivary calculus, and some upper teeth, excessively worn by mastication and friction of the lower teeth. Mr. Charles Rogers had sent models of a supernumerary tooth occurring in both dentitions, five incisors in the temporary, and five in the permanent dentition; while Mr. Stocken had presented a

specimen of geminating teeth, and Mr. Clifford Eskell had sent a large dried dissection, showing the dissection of the nerves and vessels.

Mr. COLEMAN mentioned a plan he had adopted for recording cases. It was a sort of day-book, with columns for the name of the patient, the nature of the operation, the description of the tooth operated upon, paid and unpaid fees, current and private expenses, rent, &c. The book formed a very satisfactory reference in case of patients complaining of the fillings coming out of some particular tooth, as it often showed that it was a different tooth altogether which had been previously attended to. He had adopted the method for about fifteen years.

He also stated that at his request Mr. Merson, the House Surgeon of the Dental Hospital, had carried out twelve experiments in the application of pepsine paste, which had been introduced from time to time to their notice by Mr. Oakley Coles. Mr. Merson admitted that he had not, perhaps, carried out the details as Mr. Coles thought they should be, and that might account for the results not being so favourable as might be desired. The teeth were syringed or mopped out with tepid water, and then the pepsine, which was made into a thick paste with glycerine, and slightly acidulated with diluted hydrochloric acid, was conveyed to the teeth on a pledget of cotton, and finally covered over with cotton containing a solution of mastic. In three of the cases the pain was so great that the filling had to be removed. In three others in which the application had remained in the teeth forty-eight hours, there was more or less severe and intermittent pain, and upon the dressings being removed, the condition of the pulp appeared the same as it did previous to dressing. The teeth were re-dressed, and were examined at the end of twenty-four hours, but the condition of the pulp seemed in no way improved. In the remaining six cases the dressing was allowed to remain for five, six, or seven days. There was not much pain in the teeth, but there did not appear to be much improvement, either in the amount of the discharge or the condition of the pulp. These cases were such as he would have regarded as favourable for destruction by arsenic, which he preferred employing in connection with carbolic acid, acetate of morphia being occasionally added.

Mr. Merson said he would be glad to try further experiments

with the pepsine, but he had also been carrying out lately a series of experiments with several new agents, which had recently been recommended, such as the lacto-phosphate of lime, benzoic acid, salycyclic acid, &c.

The PRESIDENT mentioned that in collating some thousands of cases at St. George's Hospital, he had adopted a register with only about a fourth of the number of spaces for every patient which were used by Mr. Coleman, and which much facilitated the labour of extracting the details.

Mr. STOCKEN exhibited a model Register for registering models.

The PRESIDENT, in answer to several inquiries that had been made, intimated that Mr. Tomes, senior, was much improved in health, and that he hoped soon to be able to attend the meetings. (Applause.)

The PRESIDENT then delivered the following address:—

GENTLEMEN,—By your unanimous suffrages you have conferred upon me a distinction among you that I value more highly than any academical or social honour possible in my position to attain.

The respect of one's professional brethren I hold in the highest estimation; it is a crowning reward to any career, and worthy the ambition of any mind to gain; I therefore, with heartfelt pleasure, thank you for the mark of confidence you have displayed towards me by placing me in this chair. The distinction I have not sought, in the ordinary acceptation of the word; given as a proof of your approbation and regard towards me, I value it in the highest degree.

Up to the beginning of this century our profession held but a tenth-rate place in public estimation. John Hunter, in his treatise on the teeth, said: "In order that the reader may perfectly understand what follows, it will be necessary for him previously to consider and comprehend the anatomy and uses of every part of a tooth. Without such previous study, the Dentist will often be at a loss to account for many of the diseases and symptoms mentioned here, and will retain many vulgar errors, imbibed by conversing with ignorant people or by reading books in which the anatomy and physiology of the teeth are treated without a sufficient knowledge of the subject."

In his time our profession appeared before the world principally through the medium of the charlatan, mounte-

bank, and advertising fraternity, whose sole aim was the transfer of the contents of others' pockets into their own, who have left us no other inheritance than the history of their doings and the evil of their example, the contagion of which is still among us. In the midst of this evil crowd, however, a small stream of better men existed, who possessed the true spirit of professional life, and who sought to honour their calling; men whose example may be taken as the seed of the fruit this century has produced, exemplified in the life and work of such as Fox, Bell, Naysmith, Salter, Cartwright, and Tomes, bringing us up to the year 1857, when great general progress was discernible, and found expression in a general desire for professional organisation.

Under the chaotic circumstances that then existed, every proposed movement was necessarily one of considerable uncertainty, and without doing any sort of injustice to either one or other set of opinions, we may honour in our hearts those who took the initiative and the risk of stepping to the front.

Among the very foremost of these I place the name of Lee Rymer, who called the first public meeting together, and to whom is due the credit of beginning the first public organisation of the Dental profession in this country.

Much mental and physical work, patiently and freely bestowed, resulted in the formation of the Odontological Society of Great Britain. I have had a somewhat large experience of our profession, and I am delighted to say a rather extensive personal acquaintance with those who form it. I have given thought and study to the subject, and I have come to the conclusion that the objects for which our society was constituted were just those calculated in the highest degree to benefit our profession. I am free to express this opinion strongly, because it is no child of my brain; I was not one of its founders, I was only one of the invited members.

In other professions the higher members depend in a great measure on the patronage of the lower. The physician is called in consultation by the general practitioner, the counsel's opinion is sought by the solicitor, &c.; but in ours each member stands alone. Any original mode of practice, or valuable application of skill, when made public, places all on an equality as regards its advantages. It would

therefore, almost seem to be our individual interest to cultivate a strict exclusiveness.

Under such circumstances, the formation of a Society for the encouragement and diffusion of knowledge in dental surgery, and for the promotion of intercourse among members of the Dental profession was, to my mind, an act of high chivalrous patriotism. The aim and object being the exaltation of every one to a creditable professional standard, an example in honourable contrast to the selfish apathy of those who would appropriate everything and reciprocate nothing, or to those who, by their selfish reticence, publish their unsympathetic indifference to either the diffusion of professional knowledge or to the extension of friendly intercourse among their professional confrères.

There can be no doubt that through the influence of our Society a professional spirit is fostered in our ranks, a feeling of emulation raised, and a desire created to be distinguished by high-class attainments. Three of our members are Fellows of the Royal Society, one is an Oxford graduate, one an M.B. of London, one has obtained, by examination, the highest surgical qualification, and we have a second Fellow of the Royal College of Surgeons, by examination, on our proposal-papers. But, better than all these, we have now in the ranks of the profession 350 who possess, by examination, an honourable dental qualification, the only one, in fact, to be obtained in this country that can give any real dental status to the possessor; and it is a qualification stamped by the approval of, and granted by Royal Charter through the Royal College of Surgeons of England, the most exalted surgical college in the world. These are proofs, I think, good and true, that we fear not now having our dental knowledge tested by the ordeal of an examining board.

Shade of John Hunter hearest thou this.

There is one great purpose to be served by our Society that is lamentably overlooked by the majority of the profession.

If we shut ourselves in the privacy of our own rooms, attending only, like tradesmen, to the wants of those who call on us, touting for more customers by cards, circulars, hand-bills, and newspaper advertisements, we assume the position only of handicraftsmen, and to ask for legislative interference under such circumstances is simply to ask for a trade monopoly, which, in the present day, no statesman dare enter-

tain. If, on the other hand, through the agency of this Society, especially if supplemented by branches in our large seats of learning and population, such as Edinburgh, Dublin, Glasgow, and Liverpool, &c., we can show to the world we have the spirit of professional men, that the practice of our art requires special study, and should be tested by examination before being exercised on the public, legislative recognition would necessarily follow, not as a favour to give Dentists a monopoly, but as a duty to protect the public from the ignorant pretensions of the unqualified.

I have heard it said that country members and visitors at our meetings have often felt themselves but coldly received. I know the general feeling here to be that, as members, they are entitled to all the privileges of the Society, and to press attention on them would savour of patronage, at all times offensive to gentlemen meeting on terms of equality. In a Society, however, founded for the encouragement of intercourse among the members of the profession, I think we had better err on the side of cultivating, rather than on that of neglecting, this duty. No profession is so much in need of friendly intercourse as ours. All our successes are principally known to ourselves. Our failures go from us and are seen by others. We, therefore, cannot too carefully guard against thinking too highly of our own doings, or against depreciating the work of others.

There is a law of the Society granting a privilege to members which has seldom, if ever, been exercised; it runs thus: "Any member may make suggestions to the Council regarding changes in the laws by letter addressed to the secretaries." We now form the Odontological Society of Great Britain, yet by law 18 the President must be elected from the London members. I could name in a breath half-a-dozen non-resident members whose elevation to the chair would do credit and honour both to Society and profession. Suppose during the next year the secretaries were to receive 250 letters suggesting a change, how evidently strengthened the Council would be in proposing any such liberal measure.

In conclusion, I hope and trust that with your united assistance, during my year of office, I may be enabled to advance the objects for which our Society was founded—objects that I sincerely believe, if fully carried out, would do honour to ourselves, honour to our calling, and even to our country.

Mr. OAKLEY COLES, referring to the communication made by Mr. Coleman, said he desired to know more precisely the character of the cases in which the pepsine had been used. He pointed out that the cavity, instead of being syringed with water, should be cleaned out with acidulated water, such as dilute hydro-chloric acid, that the pepsine should be put in solid, not on wool; and that instead of sealing it up with mastic, the cavity should be sealed up with wax, as the presence of the spirit to some extent counteracted the action of the pepsine. He was exceedingly obliged to Mr. Merson for having made the experiments. His only regret was that there had been no previous report upon it, the material having been before the profession for over two years. He hoped that this would be only the first of a series of reports on therapeutic agents that might be brought before the profession by the officers of the Hospital.

Mr. UNDERWOOD, referring to Mr. Rogers' models of supernumerary incisions, mentioned a case of a child who had three perfectly well-formed central incisors in the first set.

Mr. COLEMAN, on behalf of Mr. Merson, thanked Mr. Oakley Coles for his explanations, and said that Mr. Merson would be glad to try another series of cases in the manner described by Mr. Coles, and to report to a future meeting.

We give an abstract of a paper which was then read by Mr. George Henry, upon "The Conservative Treatment of the Dental Pulp when Exposed *versus* Devitalisation." Having advanced some elementary reasons for preserving the pulp, and asserted that "the dental pulp is as the *medulla* to a bone, or the pith to a tree," Mr. Henry, criticising the opinions of several members who took part in the discussion upon Mr. Hutchinson's paper, read at the November meeting of the Society, said that the advocates for the use of arsenious acid for destroying the pulp are far from unanimous as to the pathological condition demanding such treatment; and, in quoting the opinions of gentlemen justly eminent, I trust my motive will not be misunderstood. For instance, Mr. Kirby "never applied arsenic without cutting off a portion of the surface of the pulp with a small spoon excavator." This vital condition of the pulp, admitting of such excision, to my mind, implied one amenable to conservative treatment. At any rate the treatment I am about to advocate would undoubtedly save such a one. One of the earliest pioneers of the conservative treatment of the pulp—by capping this organ—Mr. Thomas A. Rogers (*Vide* "Transactions of the Odontological Society," 1856-57, vol. I.), still holds the opinion "that when suppuration of any part of the pulp had been set up, it was necessary to destroy the whole pulp." But, as far as I am concerned, this suppuration of the pulp has long ceased to be a formidable barrier to its conservation, as I hope presently to show in typical cases.

Mr. Coleman "employed arsenic as an antiseptic in certain difficult

cases where only a small portion of dead pulp remained in the fangs." This is scarcely referable to conservative treatment ; but I should be glad to know why he does not remove such dead remains by means of a barbed extirpator and syringing, rather than illustrate an undoubted antiseptic property in arsenic, it having the more serious and important property of destroying vitality, and its fluidifying action and consequent risk of spreading through the apical foramen of a tooth, rendering its use dangerous, especially in young persons. I cannot, therefore, realise that the power of arsenic to arrest decay and putrefaction in tissues can be advantageously availed of in connection with the teeth.

In connection with this part of my subject, one point—on which I think all are agreed—seems to assert itself, and should act as an additional stimulus to conservative effort, that is, the fact that cases of the complete death of the pulp are the most treacherous to treat ; and I hope to win others to consider that disorganised pulps presented for treatment, through the timid procrastination and long-suffering of patients, are numerous enough, without our voluntarily adding to the number.

Presuming sufficient evidence has been adduced to show the desirability of avoiding the use of arsenic in our treatment of the living pulp, I hasten on to describe my treatment ; prefacing this with a few words as to the most suitable material for capping or protecting exposed pulps, and the chemical agent best adapted for restoring and preserving the same, in my experience.

After trying most of the materials (for list of these materials, *vide* paper by Dr. Stellwagen in the *Dental Cosmos* for March, 1873) recommended for protecting the pulp, I have come to the conclusion that pink bibulous paper answers our purpose better than anything else, for the following reasons :—It is non-metallic ; its softness and flexibility, when moistened, enables us to adapt it with precision ; its absorbent property serves to retain an approved antiseptic application ; it is easily placed *in situ*, and the pink colour is a help to correct adjustment in difficult situations.

Other materials may doubtless be employed with good results, but anything of a stiff nature, or that cannot be accurately adjusted, I believe must necessarily be an imperfect protector, and that bridging over a pulp is a mistake, since the slightest air-vacuum or atmospheric contact is favourable to septic influence, and therefore a hindrance to success.

With regard to the chemical agent most valuable to us at once as a coagulating caustic and a powerful non-irritating antiseptic—having tried nitric acid, chloride of zinc, nitrate of silver, creosote, and carbolic acid—I find the last-named alone meets all our requirements without drawback.

I have tried the pepsine paste and salicylic acid for the sake of their antiseptic property, but my success with carbolic acid has been so uniformly satisfactory, that I look upon it as the most valuable agent we can employ ; believing that it converts the suppurating surface of the pulp into a healthy one, and promotes a normal action beneath the blanched film ; how else can we account for the permanent comfort secured to teeth correctly treated with it? No doubt an explanation is to be found in the different action of carbolic acid "under cover," and when under atmospheric influence.

We will suppose that in preparing a cavity on the mesial surface of a first lower molar the pulp has been needlessly but accidentally exposed, and, perhaps, punctured. If pain be occasioned, this is readily alleviated with one of the favourite anodynes, such as aconite and chloroform, camphorated chloroform, or, better still, carbolic acid. The cavity finally prepared, a small pledget of wool charged with carbolic acid is kept in contact for from five to ten minutes, according to the extent of the exposure; for if the puncture is only sufficient to cause a slight bleeding, it will not be necessary to bare the pulp, but if a visible exposure has to be dealt with, this should be positively blanched, and so prepared for innocent contact with a protecting layer. This layer, consisting of a small circular or oval bibulous pad, moistened with carbolic acid, is carefully adjusted in juxtaposition with the blanched pulp, overlapping the aperture about half a line or more. This done, a few seconds suffice to mix the osteo, arranged ready to hand on a glass palette. Insert the same without undue pressure, hollow it out, and trim the edges, undercutting for the permanent metallic plug, which may be inserted as soon as the osteo has firmly set.

When disease has accomplished the work of a simple exposure, the treatment will be almost identical, apart from the previous existence of tooth-ache, which would involve temporising.

I will now describe my treatment of a suppurating pulp. This condition ascertained, I first cleanse the carious cavity, removing all trace of decay, and then syringe the suppurating surface of the pulp with carbolized warm water, which soon reveals to what extent the pulp has suffered. The next point is, perhaps, the most important that I have to urge, since to its omission may, I believe, be traced the numerous failures which are deplored by all who have earnestly desired to preserve such pulps, but have had to seek refuge in devitalisation. This next step, which may be best understood by studying figs. 1 and 2, is to cut down the surrounding walls of dentine, represented by the dotted line, so as to be on a level with the surface of the pulp, which may in all cases be accomplished with suitable sharp spoon excavators, and that invaluable aid, the burring engine, so securing the direct apposition of a temporary carbolic acid dressing. This I have rarely to renew more than twice, at intervals of a few days, governed by the perfection of the previous treatment, and when the tooth does not admit of being stopped at the second interview, I protect the fresh dressing with mastic. The suppurating surface having been changed to a healthy one, I proceed to apply my bibulous layer, securing a strict adaptation in contact with the blanched pulp, when the operation is completed by filling temporarily with osteo, or lining the cavity with this material, and inserting a good amalgam filling; or if a gold plug be contemplated, it is wiser to fill with osteo, and defer the gold filling for a reasonable time.

Difficult situations may be met by freely filing away the tooth; and I am bound to contend from experience—without wishing to lay down a hard and fast rule, each case presenting its peculiar features—that the above treatment, with certain modifications, meets all cases of exposed dental pulp, be they healthy, irritated, inflamed, or suppurating, when this organ has not become irreparably gangrenous or dwindled to dimensions of dead matter only to be met by extirpation and fang-filling; and I think this treatment, carefully carried out, commends itself for:—

1. Simplicity and painlessness.

2. Time saving.
3. A general absence of supervening symptoms.
4. Its wide applicability to all cases of exposed vital dental pulp ; and,
5. Its *rationale*, taking the peculiar *habitat* of the pulp into consideration, is sufficiently analogous to the surgical treatment of other lesions of the body.

I am persuaded that topical treatment stands first in the way of removing local irritants, and that we have a right to count much upon the recuperative power of the pulp, that *vis medicatrix naturae* which befriends us in the treatment of other lesions of the body, from cuts, splinters under the skin, burns, &c. The peculiar diathesis of the patient may favour or retard the progress of healing, and in so far the local treatment may be seconded by judicious antiphlogistic remedies, aperients, and astringent lotions. Constitutional depression of vital power or exhaustion after illnesses simply point to the necessity for temporary local expedients ; but the principle of the local treatment advocated must not be departed from.

I desire to give emphasis to one feature in the treatment, and that is, whatever the state of an exposed pulp, short of gangrene, *cut down to it*, or level the adjacent dentine with the pulp's surface. I am convinced we cannot treat it effectually so long as a space exists between the pulp and the aperture leading to it. A fact which has more than once been impressed upon my mind through a carbolic acid dressing failing to blanch the pulp ; showing that the caustic had not touched it, as the inevitable result of contact is a white film or eschar. It is at this point that most operators stop short in their conservative treatment of diseased pulps. Mr. Woodhouse says in his paper already referred to, "When he ascertains that the pulp appears shrunk into the cavity, he at once decides to destroy it, as he considers it a sure sign that its vitality has been lowered, and that it would therefore perish under conservative treatment." A deduction which I believe to be erroneous.

If the pulp be inflammatory, it may with advantage be made to bleed, so relieving the hyperæmic condition, after which gentle syringing with carbolised warm water will have a beneficial effect, and prepare it for a temporary dressing.

I think the happy results attending the above treatment tend to show that the local destruction of the odontoblast layer does not prevent ossification of the pulp ; but the greater our success the less our opportunity of gaining information as to the actual physical changes in the pulp so treated. Time will undoubtedly clear up the difficulty when such teeth, from remote causes, may come back to us.

When we are exceptionally baffled, and untoward symptoms succeed our efforts to save a pulp, we have an alternative in the operation of rhizodontripy, and I, amongst others, set a high value on this expedient.

Fifteen years ago arsenious acid was looked upon in America as the most important article in the dental pharmacopeia, because it enabled the dentist to achieve far more in conservative dentistry than any other one thing. (The *Dental Cosmos* for April, 1862.) But this so-called "conservative dentistry" meant the preservation of a tooth minus the pulp—"the shell without the kernel." I trust the dental student of to-day is imbibing a truer perception of what should be paramount in preserving the teeth. I mean the conservation of the dental pulp.

Mr. COLEMAN explained, in reference to the plan he advocated, that he always cleared out the contents of the fang when he had an opportunity, but in cases where it was utterly impossible to clear out the contents of the fang, without destroying the fangs of the tooth, he employed arsenic. He had successfully employed arsenic for nearly five years, especially in the case of children with their first teeth, although he had seen mischief arise from its application in devitalising pulp. He thought that the application of arsenic was one of the best cures for periostitis that had ever been brought before their notice.

Mr. MOORE thought that the healing process in the tooth should be completed before the filling process was commenced, otherwise the tooth might be lost altogether.

Mr. C. S. TOMES, referring to a remark of Mr. Henry as to the use for which the pulp was designed, said it was not in the least known what the purpose of the pulp was in a finished tooth. The tooth would, perhaps, just do as well together, as was instanced in the case of some of the lower animals. In the present state of their knowledge, he thought that all their arguments as to devitalising the pulp should be confined to the danger resulting from it by the occurrence of alveolar abscess. He thought that Mr. Coleman had struck upon a chord well worthy of consideration in speaking of the extension of inflammation from the pulp as being something capable of causing periostitis over and above the liability to having the periostitis set up by putrefying matter, as the vascular and nervous supply of the periosteum was derived principally from the tooth pulp. There was always a difficulty in carrying the anti-septic applications down to the end of the fang of the tooth; and if some anti-septic could be found to diffuse itself readily throughout the pulp, so as to convert the nerve itself into something like leather, so as to be itself the filling, better results in the way of fang-filling would ensue.

Mr. WHITE said that, although at first he was opposed to the use of arsenious and carbolic acid, yet he had afterwards successfully employed in some cases a solution of glycerine and carbolic acid, capping the healthy exposed pulp with vulcanite rubber, and there was no return in such cases of anything like periostitis. In cases where the pulp was suppurating, however, he had employed a paste of arsenious acid with carbolic acid and glycerine with bene-

ficial effect. He agreed with Mr. Henry that it was better to save the pulp when it was possible to do so, but in cases where it was partly suppurating it was better to make a clean job of it. He thought that when they had such a manageable and successful agent, such as arsenious or carbolic acid, it should be adhered to.

Mr. SEWELL, referring to the difficulty mentioned by Mr. Tomes of dealing with the decomposed particles of pulp in the depth of the fangs, thought that the remedy was to be found in absolute alcohol, which, although not an escharotic, would in many cases render portions of the pulp incapable of decay. He had, since bringing the matter before the Society, constantly used absolute alcohol in fang-filling. He first removed as much of the pulp as possible, then applied the alcohol with filaments of wool, then filled the roots with liquid oxi-chloride of zinc, sometimes mixed with filaments of wool in order to carry it to a great depth. In that way a small part of the pulp might be successfully preserved, provided it was not to some extent decomposed. He thought that Mr. Henry was quite right in drawing an analogy between dental and general diseases; in fact, he could not do that too much. Mr. Henry had only recognised one pathological condition of suppurating pulp, whereas there were many conditions, which should not all be treated according to one method. There were also cases where the pulp was divided into four portions at the roots of the tooth, two or three being gangrenous and one living, and he asked how that could be treated except by destroying the remaining portion?

Mr. BARRETT stated that for the last four years he had frequently destroyed pulps with arsenious acid. After the arsenic had acted on the pulp for two days, he removed what remained of the devitalised pulp as thoroughly as he could, afterwards plugging the fangs and pulp cavity with cotton wool soaked in carbolic acid, mopping the interior of the fangs so that the liquid carbolic acid might penetrate into the extremity of the fangs. He did not remember a single case in which alveolar abscess had followed that treatment.

Mr. DENNANT said that for many years past his treatment of the pulp exactly coincided with that described in the paper. He should avail himself of Mr. Coleman's suggestion and use arsenic as an anti-septic. He had formerly used it in combination with morphia and creosote.

Mr. WEST said he had used arsenic for many years without satisfactory results, but after hearing of Mr. Henry's treatment he had adopted its use and found it very successful.

Mr. THOS. A. ROGERS always endeavoured to save the pulp unless suppuration and some amount of loss of substance had occurred. Mr. Henry's idea of the *temporary coagulation* of the surface of the pulp after the use of carbolic acid was new to him. He often wondered what happened under a filling after the employment of real agents, as nitric and carbolic acid. He gathered from the paper read by Mr. Coleman that the pulp remained unchanged after the nitric acid treatment followed by filling; and having lately read several accounts of the carbolic acid treatment, where the plug was afterwards removed for the purpose of examining the state of the pulp, he found that that organ was unchanged and apparently healthy, but with no signs of calcification. Although it remained thus quiescent for a short time, he did not think these cases would ultimately be satisfactory, for which result it was necessary that calcification should be induced. Such powerful agents as the above were likely to prevent this by destroying the *membrana eboris*, after which he thought it unlikely that dentine would be formed. Mr. Tomes, indeed, mentioned a case in his book where calcification had taken place in the fangs of a tooth broken off in extraction; but, independently of the rarity of such cases, he believed that in this one the whole pulp had been left behind collapsed on the fangs when the crown was removed, and that, covered by coagulum and protected by the projecting gum, some kind of calcification had occurred. He suggested a series of systematic observations extending over several years, on some such principles as the following. The consideration of the peculiar nature of the dentine pulp, a modification of mucous tissue approximating to periosteum. The nature of the diseases to which similar tissues are liable, and their treatment. The treatment of the pulp hitherto adopted, and its results; and the application of these principles to its future treatment. He believed the Society contained many members well fitted for undertaking such an inquiry in a systematic and philosophical spirit.

Mr. BARRETT said that carbolic acid exercised an anti-septic effect, preventing decay.

Mr. STOCKEN said he had followed, with almost uniform success, Mr. Henry's method of treatment for two or three years. In cases of suppuration, however, the treatment extended over some few weeks before he could stop the tooth.

Mr. MERSON said that in cases where the pulp was accidentally exposed, he applied carbolic acid on blotting-paper and covered in with osteum, a portion of which was cut out at the end of a month and amalgam or gold fillings substituted. When the pulp was in a gangrenous state he applied arsenious acid and carbolic acid and extirpated the whole, filling the canals with gold. He had successfully adopted Mr. Underwood's plan, when the pulp was in a more congested state, of lancing freely, clearing the canal out, and pumping with creosote.

Mr. TURNER complained of a want of definiteness in the statements that were sometimes made with reference to the remedies applied. He had not used arsenic for many years, but latterly he had used it, and he found he was driven to extirpate the pulp more frequently than he used to do.

Mr. HENRY, in reply, said he thought his paper had laboured somewhat under a disadvantage from his appended cases not having been stated, as they would have been an answer to some of the objections raised. He did not agree with Mr. Barrett that coagulation of the pulp was obtained with carbolic acid; on the contrary, there was a vital action which resisted it. With regard to the treatment of suppurating pulp, he mentioned the case of a child he had under treatment, one of whose molars was extensively decayed. He cleaned the decay away carefully, exposed the pulp, dressed it with carbolic acid, and stopped with a mastic plug. A week afterwards he removed the plug and the pus underneath, and stopped the tooth with an osteo-plastic filling, and the child left in perfect comfort, and continued to be so. He also mentioned a case of treatment of polypus of the pulp in one of the teeth of a gentleman. The operation was performed about three years ago, and although the patient had, previous to that period, been unable to use the side of the mouth in which the tooth was, he stated that it was now one of the most useful teeth in his head. He would not pooh-pooh the use of arsenic in the case of a dead pulp, but he was only treating of living pulps in his paper. He thought that

a careful perusal of his paper, and the cases appended, would have the effect of changing the minds of those who were resolved to continue the use of arsenic. He was quite certain that the future would condemn the use of arsenic, and his success with the conservative treatment warranted him in giving up its use. He thanked the members for the reception his paper had met with.

The business concluded with the usual votes of thanks.

ORDINARY MONTHLY MEETING, MARCH 6TH, 1876.

C. VASEY, Esq., in the Chair.

The minutes of the previous meeting having been read and approved,

The balloting of members was about to be proceeded with in the way which had lately been adopted by the Society for convenience sake, namely, of balloting for a number of candidates simultaneously, when

Mr. UNDERWOOD said that, as it had been originally the custom of the Society to elect the candidates individually, he protested against the method proposed, and requested that the candidates be elected one by one.

The meeting having signified their approval of Mr. Underwood's proposal, the following gentlemen were balloted for in succession, and duly elected :—

Mr. Augustus Winterbottom, 16 Sloane-street ; Mr. Lewis B. Pillin, Conduit-street ; Mr. George William Payne, 34 Ebury-street ; Mr. G. W. Field, 39 Upper Brook-street, Grosvenor-square ; Mr. David Cormack, 77 Margaret-street, Cavendish-square ; Mr. George Hilditch Harding, Manchester ; and Mr. J. F. Corbett, 3 South Mall, Cork.

On the name of Mr. Frank Alexander Huet, 120 Oxford-street, Manchester, being announced for ballot,

Mr. C. J. FOX asked whether he was right in supposing that the ballot paper containing the name of the last-mentioned candidate went round as having passed the Council declaring that he was eligible for election according to the laws.

The PRESIDENT said he was afraid they could not enter into the question now, as it was a matter of management with the Council.

Mr. FOX said that, as the Council declined to answer the question, he must then take it for granted that the fact of

the candidate's name in question having been put in nomination before the Society indicated that the Council considered him eligible according to law. There might be individual differences of opinion, but, according to the usage of the Society, no gentleman had ever been proposed for the ballot unless he had passed the Council as eligible.

The PRESIDENT.—I am afraid we cannot allow this to go on; it is quite irregular. You are asking me a question with regard to the Council.

Mr. FOX.—Pardon me; the circumstances are irregular. I have been told by a large number of gentlemen here that they are prepared to vote for the right and proper thing; but they do not know what the right and proper thing is ("Chair").

The PRESIDENT.—Really I do not think I can allow you to go on.

Mr. FOX said that one gentleman had already been heard protesting against a certain course of action, he thought he had a right to claim a hearing.

The PRESIDENT said it was scarcely fair for Mr. Fox to refer to that. He did not wish any alteration. It was merely a matter of arrangement to save the time of the Society; it was not a matter of principle.

Mr. FOX said it appeared to him that a great deal of canvassing had been going on (cries of "Chair"), and a number of post-cards had been sent round and circulated amongst the members; and he thought they were all entitled to an explanation of the circumstances ("Chair"). If, however, the President ruled it, he must sit down ("Chair, chair").

The PRESIDENT could not admit that Mr. Fox was in order.

The ballot was then taken, and as a result Mr. F. A. Huet was declared to be not elected.

The PRESIDENT asked Mr. Fox if he questioned the result of the ballot.

Mr. FOX replied that he only wanted to know if it was one-third of the balls or one-third of those present.

The PRESIDENT.—One-third of those present; but there is no question of numbers here.

Mr. FOX expressed himself as satisfied with the decision.

Mr. Hugh Peterson, of Sydney, N.S.W., was then balloted for and declared duly elected.

Mr. SPENCE BATE, F.R.S., then read a paper "On the Neces-

sity for the Exclusion of Air as well as Saliva from large Gold Fillings, and the best Means of obtaining these Results," of which the following is an abridged report:—

The varieties of gold are numerous:—adhesive, non-adhesive, spongy, crystalline, cylindrical, thin foil, thick foil, thicker, and very much thicker. All and each are strongly recommended, and have, no doubt, their admirers. All, however, agree that there is one thing essential in the manipulation of gold, whether adhesive or non-adhesive, and that is, moisture of all kinds must be excluded from contact with the gold during the process of plugging. So essential appears this condition to be that I remember reading a skilful operator attributed his difficulty to compress a portion of spongy gold into a solid mass to the evaporation of moisture from a kettle of water boiling in the same room.

To overcome this difficulty all sorts of contrivances have been resorted to.

I have little doubt but that, equally with myself, many operators have been disappointed with the permanent duration of their work, after having conscientiously devoted their utmost skill, with the best appliances at their command.

The general explanation of this result universally is, that during the operation saliva has leaked into the cavity, and the gold become more or less prevented from being welded together by the surfaces of the several portions of foil having become moistened, and so prevented from being brought into immediate and close contact with each other.

To obviate this interference with the perfect completion of work, the greatest care is inculcated, not only to exclude saliva during the operation, but also to expel all moisture from the cavity previous to the commencement of the operation.

That saliva may be kept in abeyance in many cases with care, is possible, but certainly moisture never can.

We all know that a tooth when removed from the mouth does not become dry under many hours, and also that moisture from the breath will condensate on any surface colder than itself. Thus the passage of the gold pellet through the mouth collects a rime of moisture upon its surface sufficient to interfere with the perfectly dry contact of two surfaces of gold.

In spite of this, we find that a large number of gold plugs are inserted and consolidated with success. The question therefore arises, whether or not the presence of moisture is so fatal to the permanent solidity of gold filling as is generally believed, or whether the cause may not be due more immediately to other interference.

My own opinion has long been towards the latter hypothesis, and the presence of air entangled within the folds of the gold during the process of introducing the plug is, I feel, with confidence, the great cause that interferes with the perfection of large gold plugs.

Leaf-gold, in whatever form it may be rolled, must envelop between its folds a large quantity of air, which, being compressible, is forced down into the deeper recesses, where the cessation of pressure permits it to rest until the entire mass of stopping is raised to the temperature of the general system. The compressed air by this means becomes more rarefied, and acts as a pressure from within, escapes through such crevices

as may exist. The consequent result is, that the saliva from the mouth that laves the tooth persistently, by capillary attraction, is drawn into the passages by which the compressed air escaped, carrying with it in solution the salts and mucus of the mouth. Thus it is, that it appears to me, the plug that once appeared to have been solid and well condensed, becomes soft and penetrated throughout with salivary deposits. Not only do I contend that the presence of compressed air is a source of detriment to successful gold plugs, but that it is an immediate, if not constant, source of peridental irritation and alveolar abscess.

Feeling certain that the presence of air is one of the more immediate disturbing causes interfering with the perfect consolidation of a gold plug, and its permanent retention within the cavity of a tooth, it becomes necessary that we should ascertain the means by which it may be excluded.

If we take a sheet of gold foil and lay it smoothly on the surface of a plate of glass, the greatest difficulty will be experienced in placing it and retaining it in immediate contact with the entire surface; but if the same be inserted under water from which the air has been expelled by boiling, the sheet of foil will be found to be capable of being brought into immediate contact throughout its entire surface.

If this be true with regard to a sheet of gold on a surface of glass, it will be found to be still more so in relation to two sheets of foil. This contact is due to the fact that the water takes the place of air between the two surfaces, and, unlike the latter, the water is not compressible, and therefore is capable of being forced out from between them.

This appears to raise the question whether moisture, free from extraneous matter, is in itself detrimental to the perfect adhesion of two surfaces of pure metal, of the same character and condition.

My own experience tells me that the presence of water that is free from air, and any substance in solution, cannot have any deleterious influence in preventing the perfect cohesion of clean surfaces.

In order to give force to this opinion, I have filled with gold taken out of water several large cavities in certain teeth, which I think will clearly demonstrate that, whatever shortcomings there may be in the perfection of form attributable to manipulation, the gold is capable of being as closely compacted under moisture as it is without it.

This tooth I put into clean freshly-boiled cold water, where it remained until the dentine was saturated with moisture. I then carefully plugged the cavity with some of Ash's No. 1 gold, which I prepared in a manner that I shall describe, and placed it in water, taking it out streaming wet, and forcing it into the cavity until I could not press in any more. The gold was all inserted with hand-pressure, without being placed in a vice, and malleted at the surface only. I then polished it, put it aside for a day or two, and then threw it into an inkstand filled with writing-ink, where it remained for some days, when it was taken out and again allowed to dry; after which I split the tooth into two pieces, took out the gold filling, and found that not the slightest amount of discoloration from the ink had penetrated either between the walls of the cavity and the gold, or into the substance of the filling. The gold was then annealed and beaten into plate, a circumstance, I contend, that could not have occurred if the presence of moisture between the folds of the foil had in any way been detrimental to the perfect cohesion of the several surfaces brought

into contact ; a fact, moreover, that would have been utterly impossible if the ink had penetrated into the plug.

The next experiment is one of a different kind, and originated in the supposition that it was very probable that more or less air was very likely to get entangled within the folds of the foil during the necessary exposure of the gold after it was taken from the water, before its being compressed into the cavity of the tooth.

I therefore thought, if I submerged the gold in glycerine, that I should be able to work with a fluid that would exclude the air, if it would admit of the gold by compress into a permanently solid mass.

Believing as I do the importance of glycerine as a remedial agent, I was very desirous of ascertaining the extent to which gold would combine when submerged in glycerine. I therefore plugged two teeth, molars, with large lateral cavities, with gold that was submerged in glycerine. I scarcely think that the finish is as compact as those that have been steeped in water only, but the defects appear to me rather to be those of manipulation than of any deficiency arising from the power of a solid and hard gold plug being interfered with by the action of glycerine ; and the power of solidity being given to such plug depends, in my opinion, on the extent to which the air has been excluded from the plug, and not upon the presence of moisture or glycerine.

I have throughout confined the term moisture to mean water, or aqueous vapour, free from any foreign admixture, and therefore cannot include saliva, which contains salts in solution and much viscid substance that cannot but be prejudicial to the work under any circumstances.

The manner in which I have generally prepared the gold for this process is by cutting the book up into various sizes, and folding the several pieces into loosely compressed balls, touching them as little as possible with my fingers. Some, also, I roll and compress into long plates ; all of these I place into perfectly clean water. They will be found to float upon or immediately below the surface, and will so continue until the water be boiled for a short time, when, the air being expelled, the pleggets of gold sink to the bottom.

The gold so treated works more plastic than it previously did ; and I contend, with less amount of labour, it is capable of being wrought into a perfectly impervious stopping.

It is now five-and-twenty years since I made my first experiment, and I was induced to try it from the circumstance of having to replug a tooth that had been stopped by one of our best operators.

The plug, while it appeared to be entire and perfect at surface, I found on pressure not to more than half fill the cavity which it was intended to stop. This circumstance I attributed to the presence of a quantity of air being entangled in the gold, and this allowed a space to exist in the body of the plug that the operator never supposed to be present. I have experimented in the same direction occasionally since then, and it was only after watching a plug of nearly half the size of an upper molar tooth, for nine years in an interstitial cavity, that I attained confidence to have an opinion at variance with those that are generally accepted.

I have now inserted some hundred of such plugs in the mouth, and my own experience has not enabled me to have to condemn but one or two of them.

Mr. UNDERWOOD said that in his own experience he had never yet found, as Mr. Bate seemed to have found, that moisture might be admitted with adhesive gold; but that with adhesive gold moisture interfered entirely with its properties, and that very few years would be sufficient to show that the operation of plugging under such conditions would be defective. For a long time the plan adopted in the hospital was to combine the two; to commence to plug with non-adhesive gold, and to make the greatest portion of the plug with it, and then to work up and fill with adhesive gold; but, under such circumstances, it was found imperatively necessary, not only to exclude the moisture of the saliva from actual contact with the plug, but also to prevent the moisture of the breath coming in contact with it, and for that purpose the rubber dam was invaluable. While expressing his thanks to Mr. Bate for his valuable contribution, he wished to know if he courted the presence of moisture with adhesive as well as with non-adhesive gold.

Mr. SEWELL wished to ask Mr. Bate whether the view expressed by Mr. Makins, that the cohesion of gold was a process of welding exactly analogous to the welding of partly molten iron or other metals. Some metals, such as platinum, tin, and lead, would weld in a cold state, and if the union of gold was of such a character, it appeared to him that, theoretically, the pressure of moisture must be against the union. Whatever recent experiments had proved to the contrary, he had never yet succeeded in obtaining cohesion of adhesive foil which had become moist. The difficulty of making a perfectly water-tight filling with adhesive foil was extreme, unless the gold was packed with the greatest care and in minute portions. Manipulating the gold by the ordinary methods, it was impossible to obtain cohesion of adhesive gold in the presence of moisture.

The PRESIDENT said he had always thought that too much stress was laid upon the necessity of keeping even the breath from adhesive stoppings. He had seen a great many large stoppings, after a time, fail at one corner, which he considered was due to a drawing together of the adhesive foil, it being consolidated in the centre. He had always tried to work from fixed points, fixing every piece of the adhesive stopping as he went along.

Mr. TURNER pointed out that Mr. Ashley Burrett, who lately read a paper before the Society, was confirmed in his

view by Mr. Bate, that the gas which was driven through the apex of the foramen of the tooth canal was the cause of periodontitis and alveolar abscess. Mr. Bate had almost taken their breath away by the clear manner in which he had treated of the subject, and by the demonstrations he had given of what he was able to do. He (Mr. Turner) could not believe that the admission of moisture to cohesive gold stoppings was a matter of small importance. He had never yet been able to carry through what he called a good cohesive gold stopping if moisture reached the gold, without beginning that part of the stopping anew, that is to say, clearing away the gold that was moist and treating the surface with absolute alcohol or chloroform, in order to get it quite dry. Mr. Bate had expressly stated that he did not succeed so well with spongy gold, which was the very highest kind of adhesive gold, as he did with the non-adhesive gold when treated on his principle. That went some way to show that the admission of moisture to adhesive gold was inimical to a good stopping. The moisture admitted in a general way was either breath or the saliva, and, as Mr. Bate had pointed out, the saliva was a very different thing from the pure water from which air had been expelled by boiling, which Mr. Bate used in producing the change in the non-adhesive gold.

Mr. COLEMAN said he was not very much surprised at the part of the paper which stated that water-tight fillings could be made with non-adhesive gold in the presence of moisture, because he believed that many of the fillings by the old practitioners were really made without regard to the presence of fluids of the mouth. When it was possible, the amalgams were washed before applying them, and thus the moisture was squeezed out; but sometimes the moisture was squeezed out by the instrument, and it was possible that the air would also be squeezed out. He rather thought that Mr. Bate had laid too much stress on the presence of air, because, if the plug were perfectly solid throughout, a small portion of air contained in it would not be exposed to a very considerable amount of pressure. The plug would be more or less warmed in the process of putting it in. The difference between the operation of putting it in and when it had settled in the tooth would be between 25° and 30° Fahr. of an increase; and that would not be sufficient to expand the air to any considerable extent so as to force it

out. They would only be too glad if the conclusions arrived at by Mr. Bate were correct, because in many instances it would be a great relief to know how to manipulate gold by what must be called the wet method. It had always appeared to him that the *sine qua non* in manipulating adhesive gold fillings was that moisture should not be present, and that even the moisture of the breath would to a considerable extent interfere with the manipulation.

Mr. HUTCHINSON asked Mr. Bate how he applied practically in the mouth the principles which he had enunciated with regard to the treatment of teeth out of the mouth; how he secured the presence of such a fluid as perfectly pure water, whether he applied the rubber dam and drowned the tooth with boiled water, or whether he did not use the rubber dam and put the gold into the cavity filled with saliva; also, whether he did not consider that a tooth which had been stopped with gold that had been soaked in water, when exposed to the ink test, should not take up ink, seeing that already the gold was surrounded by a moist atmosphere.

Mr. WALKER said that Mr. Bate had taken him by surprise when he said that he could plug with adhesive gold with water. He could not see how water could be introduced into the mouth without its being mixed with saliva. He would be glad to hear how Mr. Bate overcame the presence of saliva with water, because, so far as his own experience went, one atom of saliva would thoroughly interfere with the union or cohesion of one atom of gold with another. He should like, if Mr. Bate could teach him, to introduce adhesive gold without the breath affecting it.

Mr. SPENCE BATE, in reply, said he did not ask those present to take what he said for granted, but to experiment on their own behalf, and allow their experiments the test of time. In reply to a remark by Mr. Underwood, he said that it seemed rather puzzling if water made adhesive gold break up in two or three years that it should allow it to unite at all. His theory was that in adhesive gold was mixed a certain amount of air which caused a continual pressure from within. In reply to Mr. Coleman, he thought that 25° of increase of temperature was a very small amount in itself, but from his own experience he had found that it was sufficient, if kept on persistently for weeks, to break up even stoppings in which he had thorough confidence.

This, he thought, usually resulted from air being introduced into the stoppings. In reply to the remarks of Mr. Sewell, as to the welding of gold, he would merely say that his (Mr. Bate's) experiments had been chiefly with non-adhesive gold, but he had used adhesive gold with it when he wanted to build up a surface. He had frequently found that by using serrated points, and plugging carefully, he could build up the same as with adhesive gold, but it must be done with care. His experience, however, had not been so much with adhesive gold, simply because his method enabled him to work non-adhesive gold in the way usually adopted for adhesive gold. Mr. Turner spoke with regard to gas passing down through the alveolus. What had been stated in the paper with regard to that was merely an episode to show why he used glycerine. Some years ago he had been presented with some crustaceous animals from Cape Horn, one of which, a crab, was made beautifully flexible by the gentleman who presented it to him, by his placing it in glycerine for a day or two. He (Mr. Bate) had followed this example, and had by the application of glycerine toughened the tissues of such animals and rendered them flexible. He was led by these experiments to apply glycerine to the teeth, and found that it had the effect of rendering the pulp perfectly solid and firm without being destroyed. He mentioned some cases in which matter was exuding from the cavity of the tooth. He first touched the affected part with carbolic acid, and then applied the glycerine once or twice with a cleansing and, subsequently, a healing effect. In some of these cases the plug was first removed; but whenever he had had occasion to remove plugs they had not been welded specimens. He questioned whether the amount of welding took place which was sometimes supposed. With the exception of the spongy gold to which he had referred, his researches had been confined to non-adhesive gold, and he admitted that with spongy gold he could not build beyond the surface. Mr. Hutchinson was mistaken in one point when he spoke of the inky test. After it was taken out and filled with the wet filling it was put aside for two or three days until it was perfectly dry, and, therefore, capillary attraction was more open had there been any water to escape. It was in the ink-stand several days; then it was taken out, and again allowed to dry, and the same gold was beaten into a plate. If the ink had pene-

trated into the gold it could not have been beaten into a plate, and consequently it must, he thought, have been impervious to moisture. In reply to a gentleman who asked how he put the filling in, he said that his rule was to work it the same in every way. His object was to get, as much as possible, the saliva out of the mouth. He did not generally use the rubber dam, because he found that, as a rule, patients would not submit to its use. It must be remembered that the viscid portion of saliva would not mix with water. The only portion that would mix was the watery portion, and that carried the salts, but the presence of water would make it more dilute and more capable of being pressed out than otherwise. If a dozen sheets of gold were taken and laid between two pieces of wood or cloth and pressed, the cohesion would be found to be very great indeed, probably because the surfaces were brought into contact without any air between them. He had extracted an interstitial stopping from a lady's mouth on account of its getting loose, after having been in for nine years, and there was in the mouth of Mr. Scott, dentist, of Swansea, a tooth which he had filled twenty-five years ago. Both these were fillings according to the wet process, and were not so liable to kicking or rolling about in the tooth as in the dry process. He mentioned two cases of teeth which had been drawn after having been stuffed for a great number of years, and it was found that the decay had never been taken out previous to stuffing, and had not increased during the whole of the time it was worn by the patient. He could only account for that by the circumstance that the cavity must have been full of saliva, and that the plug must have been clapped in when there was no air there. He contended that the presence of air tended to the decomposition of the tissues much more than the moisture did.

After the usual vote of thanks the meeting separated.

Correspondence.

We do not hold ourselves responsible for the views expressed by our Correspondents.

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

DEAR SIR,—I have received your paper on "The Functions of the Odontological Society," and am very glad to see there is some hope of

a movement in the right direction, viz., of obtaining some really representative body, whose object it shall be to watch the interests of the Dental body at large. There is little doubt that if any legislative action is contemplated, it must be in conjunction with the whole body of existing so-called Dentists, whatever may be their qualifications, and I feel convinced that this alone, namely, registration, will eventually produce a really professional body, such as the public mind and the profession ought to attain to.

I shall listen with interest to any discussion which may arise at the next annual meeting, and give my little support to any broad measure that may be started.

I am, yours truly,

February 23rd, 1876.

E. M.

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

DEAR SIR.—"The Council of the Royal College of Surgeons, on the recommendation of the Board of Dental Examiners, have resolved that the preliminary examination in Arts shall be compulsory for all candidates for the Dental diploma who commence their professional education on or after October 1st, 1877."

This announcement will be received with satisfaction by every intelligent member of our profession.

At last a decided step in the right direction has been taken that will prove an unmixed good, which is more than can be said for "registration," for which we have lately heard so much clamour.

March 9th, 1876.

L.D.S., R.C.S., Eng.

TO THE EDITOR OF "THE MONTHLY REVIEW OF DENTAL SURGERY."

DEAR SIR.—It is quite refreshing to see in type the words "College of Dentists:" the fact that after a lapse of about twenty years since a goodly number assembled together with the honest purpose of elevating the dental profession as a body, the same step should *now* be thought desirable by many eminent men in the medical as well as in the dental profession, must be a source of pleasure to the pioneers in question, and an encouragement for the entire profession to support the present movement. "Knowledge is power linked with the universe, but ignorance is everywhere a stranger, ill at ease and out of place;" this sentiment was expressed by one of the first supporters of the old College movement, and I think when I hear of recently fledged M.R.C.S.'s dictating, from their small meetings, terms of such narrow import to the profession at large, I feel that it is high time for men imbued with more than the one idea of self-exaltation to come again to the front to support a movement for the re-establishment of what might by this time have enjoyed the happy appellation of "The Royal College of Dentists of England," which doubtless would have given universal satisfaction.

It must be remembered that the excellent staff of lecturers attached to the Metropolitan School of Dental Science and the course of study mapped out for the students afforded the foundation for a sound theoretical and practical knowledge of dental science prior to the students presenting themselves for examination.

I am, dear Sir, yours faithfully,

ONWARD.

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

DEAR SIR,—Your excellent article in last month's Review upon the functions of the Odontological Society receives my hearty approval. With all due deference to the opinions freely expressed by an allied journal, I fail to discern the exclusively scientific character of the society in question. Assuming the original intention of the founders to have made it purely scientific, that intention was neutralised by the political act of establishing the Dental Licence as an appendage to a political body, the College of Surgeons; and still more so when the amalgamation with the College of Dentists took place. It cannot be denied that the College was an essentially political institution, and that its vital elements remained in proved by the many indefatigable workers who are endeavouring to restore its principles. Being at the time a very young member of the Odontological Society, I do not know whether the union made any alteration in the code of laws, but I do remember that the title was altered from London to Great Britain, thus giving the society a wider range and less exclusiveness. If an amalgamation produces the slightest alteration it proves the infusion of new or resuscitated ideas, and the body corporate must partake of the elements of both; so allowing the Odontological was scientific, the College was political, therefore a pure union ought to combine the two. Had the College been defunct, and individually sought admission to the sister society, its elements must have succumbed to the process of absorption; but being a bodily union, is it not, to say the least, ungracious to declare ourselves adverse to their opinions, and refuse to carry on the work they have inaugurated?

A still more powerful reason why the Odontological Society should assume a political aspect is the probable formation of another society, which must of necessity prove antagonistic. The leaders of this new attempt who glory in the M.R.C.S., we presume, will possess in addition such a much higher order of intelligence than ourselves, that we presume all the science and glory will depart from us, and "Ichabod will be written on the walls" at Leicester-square. We who are less honoured envy them their attainments, and grieve that we were born too late to reach their exalted position by the same "Royal Road," but would fain hope that ere they commit themselves to another effort they will pause, and contemplate the professionally suicidal effect of their new and pet idea. One of the number disclaims any attempt against existing associations. Have they considered that the whole force of their effort is hurled against the "child" of the society they appear to befriend, and in whose ranks they remain? Let them act consistently and withdraw allegiance from one or the other: the two must stand diametrically opposed, and our safety lies in forming a new arena for future action. We must become political and scientific and defend to the utmost such unwarrantable attacks upon the "Dental Diploma"; it is the child of the Odontological Society; it arose and grew from the combination of zeal and intellect that Society brought together; shall it now forget its parental duty and quietly acquiesce in its offspring's degradation or extinction?

Future generations will fail to see the advantage of mental toil when advertising is all that is necessary to obtain a lucrative profession and social equality with the Licentiates. I am no alarmist, Sir, but cannot refrain from giving a warning when danger is so plainly visible, and

when the work of twenty years appears in such imminent peril, assailed on the one side by those who tacitly ignore its existence, and on the other by those who are not capable of seeing its advantages. I ask again, will not the only body capable of effecting a rescue stand to the post of duty, and by a bold and decisive policy unite the various sections who are now struggling each in their own little sphere to effect the great work of "Dental Reform?"

Faithfully yours,

Artillery Chambers, Finsbury-square,

March 9th, 1876.

CHARLES WEST.

The Dental Profession and the Odontological Society.

TO THE EDITOR OF "THE LANCET."

SIR,—I thank you for having granted me a hearing in your last issue, also for the interest you take in the Odontological Society, as evinced in your remarks on my letter, and your expressed belief that the discussion will prove beneficial to the institution. Believing that the Odontological Society has nothing to fear from, but every reason to court, a free discussion of its management and position, I make bold to intrude its affairs once again on your valuable space, not, I assure you, without a high appreciation of your forbearance.

The contention against the imputation of lax laws is perfectly serious on my part. First, I object to the term "lax," as exceedingly offensive. It is so when applied to morals, and as the laws of a society are the embodiment of its principles, or, in other words, the morals of a society, the expression is, to my mind, highly objectionable.

But there are other grounds on which the accusation may be met, and as you seem to have been rather misled in the matter, I shall try in a few words to state the true position of affairs.

The charge of laxity is supported on the ground of other than the holders of the dental diploma of the Royal College of Surgeons being admitted to membership. In reply, I state that when the society was formed the London Dental Society was not in existence. Our first esteemed president, although a Fellow of the Royal Society, had no medical or surgical degree; and the second president, although afterwards a L.D.S., had no professional diploma whatever during his period of office. Further, we have on our list of members several gentlemen who, while holding high professional diplomas, have not the essential one for a dentist—viz., the L.D.S. Of course you can at once say that the greater includes the lesser, but this axiom, however convenient, is not so easily adopted by those who have the responsibility of deciding the matter. The question of limiting the membership of the Odontological Society to the holders of the dental diploma is not a new one to the Council, but has been discussed from time to time by its members, and I trust the period is not far distant when this most desirable change may be made with advantage to the profession; but, until that time comes, the Council must be allowed to manage the matter in its own way. It best knows the fight which has been maintained with unscrupulous opposition, selfish indifference, and reckless ambition, and how and when the various conflicting views had best be conciliated or dominated, and I think I am right in saying that the proper chance will not be allowed to slip.

Anything like forced marching in the matter will certainly prove

disastrous. The surgical profession had once to struggle from a position even more degraded than that of the present one of dentistry. Its history is not without a record of its difficulties, and these were encountered at a time when power was more despotic and vested interests less respected than they are at present. In reminding you of this I beg your consideration, and ask for the Odontological Society the credit of being alive to all the responsibilities and difficulties of its position, and of its Council being guided by wisdom and moderation. "Who go softly go wisely."

I am, Sir, yours obediently,
March 8th, 1876. JAMES SMITH TURNER, M.R.C.S. and L.D.S.

"Vernon Galbray" and the "Dental Cosmos."

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

DEAR SIR,—I much regret that I am compelled once more to ask you to publish a communication on this disagreeable subject, but the letter of the Editor of the "Dental Cosmos" in your last issue leaves me no alternative.

Mr. White says that I charge him with the authorship of the review in question, and with having been actuated by unworthy motives in writing it. I briefly reply that the offensive notice appeared in that part of the "Dental Cosmos" entitled *Editorial*, as the reader of the journal may ascertain for himself by referring to the page of contents; such, as editorial, being understood to be under the immediate supervision of the editor. What his motives may have been I will not wait to conjecture, but it is not usual to publish (I withdraw the charge of authorship, since Mr. White denies it) lines similar to those complained of—"Set a thief to catch a thief," and the "Israelitish style of doing business," of those with whom we are on "perfectly friendly terms." Mr. White continues, "The ignorance displayed by Mr. Weiss in mistaking a communication published in a minor department of the 'Dental Cosmos' for an editorial review is no fault of mine."

The whole matter hangs upon this mistake. I did not know until informed by Mr. White that the editorial part of his journal was a minor department—a department, as he says in a letter to the "British Journal of Dental Science," unworthy of the "dignity of large type." I can only say, since he now so modestly acknowledges that such is the case, we have many of us long ago suspected it.

Mr. White adds, "It was in very bad taste for Mr. Weiss to ascribe improper motives to either publisher or editor, when the honourable house alluded to made no such charge." I beg to state that Messrs. Ash and Sons had previously written to me: "We have read with surprise and disgust the false charge brought against us by the Editor of the 'Dental Cosmos,' and had decided to repudiate the base insinuation, but as you have kindly offered to defend us, we propose to leave the matter in your hands." Upon receiving this note, I wrote to the Editor of the "Dental Cosmos," which letter he states he has published, "omitting some offensive personalities." I think I had better give these "offensive personalities," as Mr. White calls them, and leave you and your readers to judge whether I did more than fulfil the duty imposed upon me by Messrs. Ash and Sons:—

"It does appear strange that you should have gone so far out of your way to traduce a house that, on this side of the Atlantic at least,

has gained a name for honourable and straightforward dealing, more particularly as the writing of the book in question could not advance *their* interests as dealers in dental materials, and *might* injure their trade with the class the book is written to ridicule and expose."

In conclusion, I would advise Mr. White, when he receives a communication from a "well-known and esteemed contributor," although only intended to appear in that "minor department" of the journal called "Editorial," to read it; for though he states that "such little tricks are usually considered with us proofs of originality and enterprise," a contrary opinion prevails in this country among men who value their good name and the honesty of their intentions. To be likened to an Israelitish charlatan, if not to something worse, may be but a playful jest; such jests, to say the least, are intensely vulgar, and have not the excuse—as far as I can see—of even being witty.

Yours very truly,

7 Montague-place, Russell-square.

FELIX WEISS.

THE DENTAL SURGEONS ATTACHED TO THE
VARIOUS HOSPITALS OF LONDON ATTEND AS
FOLLOWS:—

Dental Hospital of London	-	-	-	Daily, 9 a.m.
National Dental Hospital	-	-	-	Daily, 9 a.m.
Charing Cross	-	-	-	Mon., Wed., Fri., 9 a.m.
*German	-	-	-	Thur., 10 a.m.
*Great Northern	-	-	-	Wed., 2 p.m.
Guy's	-	-	-	Thur., 12 noon.
King's College	-	-	-	Tues., Fri., 10 a.m.
London	-	-	-	Tues., 9 a.m.
Middlesex	-	-	-	Daily, 9 a.m.
St. Bartholomew's	-	-	-	Friday, 9 a.m.
St. George's	-	-	-	Tues., Sat., 9 a.m.
St. Mary's	-	-	-	Wed., Sat., 9 a.m.
St. Thomas's	-	-	-	Tues., Fri., 10 a.m.
University College	-	-	-	Wed., 10.30 a.m.
*West London	-	-	-	Tues., Fri., 9.30 a.m.
Westminster	-	-	-	Wed., Sat., 9.15 a.m.

Hospitals marked * have no school attached to them.

DENTAL HOSPITAL OF LONDON.

CASES TREATED FROM FEBRUARY 1ST TO FEBRUARY 29TH, 1876.

Extractions. Children under 14	-	-	-	-	-	310
Adults	-	-	-	-	-	502
Under Nitrous Oxide	-	-	-	-	-	228
Gold Stoppings	-	-	-	-	-	218
White Foil ditto	-	-	-	-	-	14
Plastic ditto	-	-	-	-	-	273
Irregularities of the Teeth treated surgically and mechanically	-	-	-	-	-	39
Miscellaneous Cases	-	-	-	-	-	201
Advice Cases	-	-	-	-	-	119
				Total	-	1904

JAMES MERSON, *Dental House Surgeon.*

The following Publications have been Received:—The Dental Register.—Johnston's Dental Miscellany.—Le Progrès Dentaire.—Le Progrès Médicale.—The Dental Cosmos.—The Pennsylvania Journal of Dental Science.—The Missouri Dental Journal.—Deutsche Viertel-jahrschrift.—Correspondenz Blatt.—Boston Journal of Chemistry.—The Dental Advertiser.—The London Medical Record.

TO CORRESPONDENTS.

ALL communications intended for the Editor should be addressed to the care of Messrs. SMITH, ELDER, & Co., 15 Waterloo Place, Pall Mall. All inquiries respecting Advertisements and Subscriptions should be sent to Mr. GEORGE BUTCHER, 4 Crane Court, Fleet Street, E.C.

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EDITED BY PROF. J. TAFT,

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Its extensive circulation and frequency of issue make it one of the **BEST DENTAL ADVERTISING MEDIUMS** in the United States.

All subscriptions must begin with January or July.

THE MONTHLY REVIEW or DENTAL SURGERY.

No. XI.

APRIL, 1876.

VOL. IV.

The Functions of the Odontological Society.

It is a satisfactory evidence of the growing importance of the Odontological Society that, like the corporate bodies generally, it is becoming very slow to adopt any radical measure of reform. It further shows a remarkable likeness to such institutions in regard to the zeal that it is exercising in the accumulation of money.

Year by year the treasurer has reported with the most manifest satisfaction, the steadily augmenting amount of the Society's funded property and "cash on deposit."

It is but natural that a treasurer, with a properly balanced mind, should possess a wholesome pride in being thus able to demonstrate the care with which he has administered the financial affairs of the Society, and, from his point of observation, a large and increasing balance is doubtless the *summum bonum* of his official ambition.

It is, however, a question that admits of a good deal of argument, whether it is the function of a scientific society to devote its energies to the accumulation of money. We must confess that we fail to discover anything in the Rules or Constitution of the Odontological Society to justify such a course of action.

The Society, so far as we can judge from the last "Report

of the Treasurer," has now nearly one thousand pounds as a reserve fund.

What is being done with the interest of this money ? We believe it is simply accumulating, and being added to the principal already in hand. The Society is larger than it ever was before, its current income is sufficient to cover its current expenditure, and admitting for the time the desirability of having a thousand pounds always in reserve, there seems no reason why the interest on such a sum of money should not be put to a more useful purpose than the increase of the funded property of the Society.

If the records of the last six months prove anything, they show that, above all things, the Dental Profession expects the Odontological Society not only to take, but to maintain, its position as the chief representative body of the Dental Surgeons in the United Kingdom. Supported by men who represent every shade of political feeling, decided in its policy of maintaining the honour of the Dental Diploma in its integrity, it is further pledged to promote and reward by every means in its power the scientific work of the members of the Profession. For such a purpose, the interest accruing from the funded property of the Society is clearly available ; and to such a use it should certainly be applied. It will, doubtless, be urged that a time may come when the number of members will be reduced to such an extent that it can only exist by the aid of its reserve fund. If ever such a day arrive, it will be better that the Society should pass away rather than be supported by such fictitious aid. So long as the purpose for which it was founded is carried out, we have no fear of its members being reduced or its financial capacities impaired ; but as soon as its usefulness ceases, it will be well that its very existence should come to an end also.

The Month.

On Wednesday, the 23rd of March, W. H. Williamson, M.B., C.M., Aberdeen University, and D.D.S., Philadelphia, was appointed Dental Surgeon to the Aberdeen Infirmary.

We regret, says the *Macclesfield Courier*, that through a printer's error in the typographical arrangement of the paper of the 29th January, a paragraph concerning Mr. Frank Huet, of 120 Oxford-street, Manchester, was improperly appended to an advertisement. As we are informed this has been made use of with a view to injure that gentleman's status, we express our regret for the error, and assure Mr. Huet and his friends that the appearance of the paragraph and the advertisement in juxtaposition was purely the result of an unintentional oversight.

A LARGE MOUTH.

The *Medical and Surgical Journal* says that Dr. Robinson, of Rome, N.Y., took the impression of the jaw of a coloured woman, which measured three inches from front to back, and three inches across, the usual dimensions being only one and a half by two inches. This is said to be the largest mouth known to the dental profession of this country.

THE NEW TOWER IN LEICESTER-SQUARE.

We hear that the handsome red brick tower, now being built adjoining the London Dental Hospital, is the property of Mr. Edwin Saunders. Is it true that this gentleman, who has already done so much for the dental profession by his munificent aid to the hospital in Leicester-square, proposes to enhance the obligation by presenting the handsome tower, when completed, to the trustees of the London Dental Hospital? We trust that what rumour says is correct.

THE ANNUAL DENTAL DINNER.

The Annual Dental Dinner at St. James's Hall was hardly an unqualified success. Places of honour were reserved for gentlemen who declined to occupy them, because they had not previously been asked to take any official part in the dinner. Some of those who attended complained that they did not get properly served, whilst others seemed to have been most fortunate in the attention they had received. No one was to blame, and the secretaries certainly did all in their power to make everybody happy. The moral of the whole thing is, that in future the arrangements should be made "rather never than late."

DEATH OF MR. CAMPBELL DE MORGAN, F.R.S.

We deeply regret to have to announce the death, after a few days' illness, of Mr. Campbell de Morgan. The dental profession by this gentleman's decease suffers a serious loss. He was from the first associated with the London Dental Hospital, and at the time of his death was chairman of the Committee of Management. A man of sterling integrity and remarkable clearness of judgment, he maintained with unwavering success the influential position which he occupied in connection with the London Dental Hospital. Apart from those social qualities and business capabilities which made him so valuable to his colleagues, he will long be remembered in the world of science by his contributions to dental physiology.

DEATH FROM CHLOROFORM.

An inquest was held at Liverpool on the 28th ult. respecting the death of a lady, which occurred while she was under the influence of chloroform. Mr. E. A. Morgan said he was a duly-qualified surgeon, practising dentistry. The deceased, accompanied by a young lady, came to him on the 25th, and told him she wished some stumps removed to prepare her mouth for a set of artificial teeth, and expressed a desire to have chloroform administered. He examined her pulse and heart, and, thinking her a fit subject, gave her chloroform slowly. While she was unconscious he removed two teeth and three stumps, at the same time keeping her face and breathing in view. Seeing a sudden change come over her, he opened the window, and then threw cold water in her face. Her breathing became slower, and he placed her on the floor, and she then ceased to breathe. He resorted to Marshall Hall's system of artificial respiration, which, however, did not answer; he then tried Sylvester's method, and she breathed freely for about two minutes. Meanwhile, he had sent for assistance. The breathing of the deceased suddenly ceased altogether. Dr. Banks, who shortly arrived, attempted to restore life by means of the galvanic current, but in vain. Dr. Caton, lecturer at the Liverpool School of Medicine, who with Dr. Banks made a post-mortem examination of the body, said the cause of death, in all probability, was arrest of the heart's action, attributable partly to the weakened condition of the heart from disease, chloroform being the exciting cause. The jury gave a verdict to the effect that death arose from misadventure—from the administration of chloroform for a dental operation, and they absolved Mr. Morgan from all blame.

On the Microscopical Structure of Fossil Teeth from the Northumberland True Coal Measures.

By W. J. BARKAS, M.R.C.S.E., L.R.C.P. Lond.

CHAPTER XXI.

(Continued from page 489.)

Genus.—*Strepsodus* (Huxley).

Concerning this fish our knowledge is very slight indeed ; we are only acquainted with detached teeth, fragments of jaws, scales, and vertebræ ; but although we have learnt so little, its place in the classification of fossil fishes cannot well be disputed when we compare its scales with those of *Rhizodopsis*. Again, with regard to the arrangement of the teeth in the jaw, there is a great similarity between these two genera. A brief *résumé* of the characters that we are acquainted with at the present time will best establish its close alliance to *Rhizodopsis* ; the mandible and premaxilla are furnished with two rows of teeth, one internal to the other, the internal teeth being larger than the external ; the scales are large, cycloidal, and marked near the centre by a raised boss ; the scales and dentary bones are sculptured ; the vertebræ are completely ossified, and present the form of narrow rings. As our researches are carried on it is to be hoped that we will be enabled to obtain some knowledge of the other characters of this fish ; as it is, we have made some advance since Professor Huxley founded the genus, because at that time only detached teeth had been discovered.

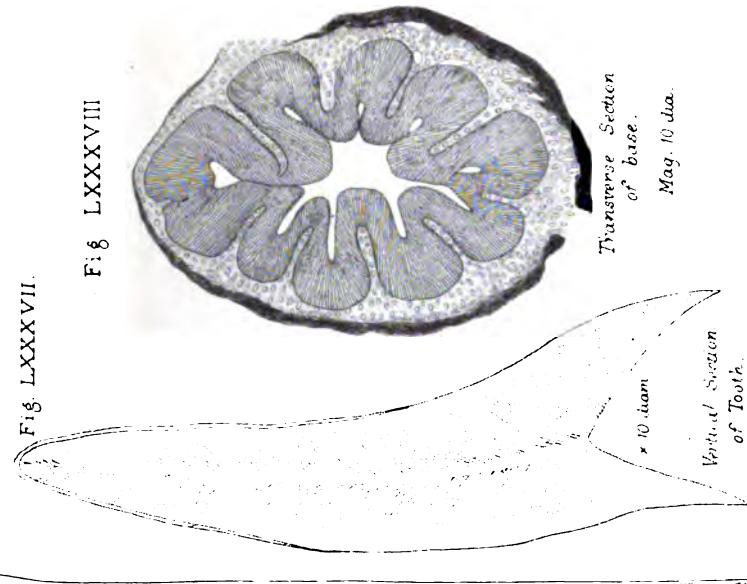
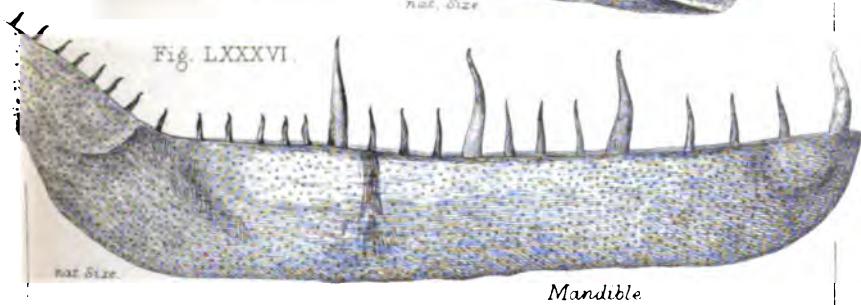
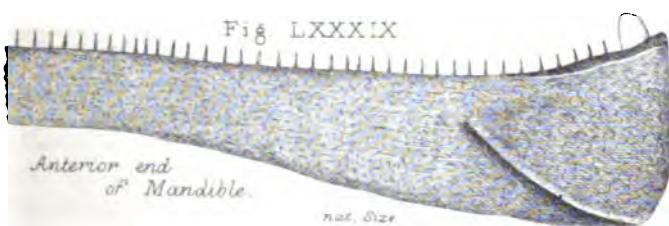
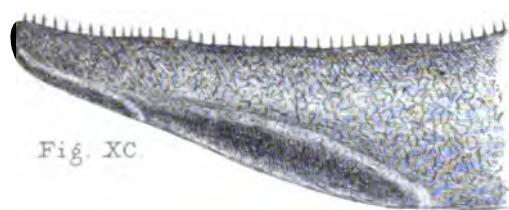
The direct literature on this genus is very small ; Dr. Young, of Glasgow, refers to it in the "Quarterly Journal of the Geological Society, London," Volume XXII., and accompanies his remarks by an illustration of a tooth ; Mr. T. P. Barkas gives a slight sketch of all the parts that have been discovered, and gives lithographs of them in his "Coal Measure Palæontology." Indirectly, Mr. Atthey and Professor Owen have remarked upon the genus ; the former, in a paper published in the "Transactions of the Tyneside Naturalists' Field Club," Volume VI., describes figures and an imperfect jaw, under the cognomen of *Holoptychius sauroides* ; the latter details the external and microscopical characters of the teeth, and gives excellent chrono-lithographs of them in his "Dental Characters of Carboniferous

Fishes," but he supposed them to pertain to a new genus, which he designated accordingly *Aganodus undatus* : the fact that these teeth were not new to science but belonged to *Strepsodus* was first pointed out by Messrs. Hancock and Atthey in the third volume of the "Transactions of the Northumberland and Durham Natural History Society." Only one species has been named, viz., *Strepsodus sauroides*; it is found solely in the True Coal Measures, and, like *Rhizodus*, it certainly appears to oppose Darwin's theory of the "survival of the fittest." It is a very curious fact that *Rhizodus*, *Strepsodus*, *Orthognathus*, and *Archichthys*, all huge and powerful scaled fishes, more formidable than any other carboniferous fishes, only existed during the period of one Coal Measure formation, *Rhizodus* belonging to the Limestone strata, and the others to the True Coal Measures, while little defenceless fishes like *Palaeoniscus*, *Platysomus*, &c., lived on until the end of the Permian era.

The jaws are very rarely discovered, and when they are obtained they are always fragmentary, at least, I am not aware of any having been found perfect; Mr. Ward, of Longton, is said to possess a jaw that is nearly so, and Mr. T. P. Barkas has an almost complete one in his cabinet, and from it I have taken my illustration. The dentary remains that I have examined all belong either to the mandible or the premaxilla, and from them we can clearly observe the distinguishing characters.

The premaxilla has never been obtained so nearly complete as the mandible, but still sufficiently so to enable us to recognise the mode of its dentition and the ornamentation of its external surface. The teeth are of two sizes; the smaller serial teeth are situated near the edge of the external border of the sulcus that runs along the alveolar margins; they are arranged on the same plane, and are placed at regular intervals from each other; there is only one laniary tooth which is situated internally to the serial teeth, and near the anterior articular extremity it arises from the bottom of the alveolar groove. The external surface is covered with well-marked tubercles, which are arranged in a very irregular manner.

The mandible (fig. lxxxvi.) is a long, narrow bone, being nearly as deep posteriorly as it is anteriorly. The symphyssial extremity in the specimen I have figured is gently curved downwards and backwards towards the inferior border;



it is also thicker there than at any other part of the bone. The form of the posterior articulation I have not seen. The inferior border is nearly straight, and runs parallel with the alveolar margin; in the drawing the posterior end of the bone is bent upwards; this is evidently not a natural twist, but is the result of a disturbance during the process of fossilisation. The superior margin is deeply grooved along its whole length, the external wall being much higher than the internal; from the inner surface of this external wall, and a little below the edge, arise a continuous row of small teeth like those in the premaxilla, but they are not as uniform in height, the mandibular teeth decreasing in size as they proceed backwards; from the bottom of the groove spring the laniary teeth, the number of which varies in different mandibles; in fig. lxxxvi. there are four, but it is probable that there are one or two missing from the posterior distorted end; they are arranged at very regular intervals, with from three to five teeth between them, according to the size of the jaw. The external surface is ornamented like that aspect of the premaxilla, and does not differ much from the markings of the external surface of a jaw of *Acrolepis*.

The teeth have a form peculiar to themselves, and it was upon this unique character that Professor Huxley came to the conclusion that they belonged to a genus new to science; he accordingly designated it *Strepsodus*. These teeth present two sizes, the serial teeth being about half the height of the laniary teeth in the same jaw; in all other respects they possess similar features. They are slightly compressed laterally, and present from two to three gentle but marked curves between the base and the apex; they gradually taper towards the point, which is rather acute; the base is fluted; so far all the teeth agree, but we find differences in the external markings of the body; in some specimens the surface is smooth and glistening in front, and the sides are ornamented by fine but distinctly raised longitudinal striae, which proceed nearly, if not quite, to the apex; in the other examples, in addition to these characters, the inferior half of the body is more or less deeply grooved by a greater or less number of furrows. Concerning this difference of marking, Mr. T. P. Barkas says, "it is not impossible that further research may prove that two species of *Strepsodus* existed, one having rounded and the other deeply furrowed teeth."

I do not think, however, that there is any real difference between them, the grooving in the one being merely due to an earlier infolding of the dentine.

(*To be continued.*)

From Dr. Holländer's Clinic.

General Alveolar Periostitis.

From the *Vierteljahrsschrift*.

W. P., 45 years old, became suddenly ill on the 3rd September, 1874. At this time severe pain in the whole of the mouth was present, and so much swelling in the upper lip and cheek that the nose and eyes were almost hidden. The pain was so severe in the teeth that P. could not close his mouth, and at the same time he felt unusually weak.

He was considered scorbustic, and the gums were lanced, whereupon the great swelling was somewhat lessened. Nevertheless, the remaining conditions, especially the pain in the teeth and the impossibility of using them in spite of repeated poultices, rinsing the mouth with tincture of myrrh, etc., remained the same, and the teeth in the upper jaw becoming more and more loose, in February, 1875, he applied for advice. The patient had a perfectly healthy and regular set of teeth, 32 in number, and not a trace of caries to be seen. In opposition to this the teeth of the upper jaw, and especially the front teeth, both to the touch and in biting were very painful, and all the teeth at their necks were entirely covered with a large quantity of very hard tartar. The gums were very much swollen, appeared dark red, almost livid, and gave out a considerable quantity of disagreeable smelling pus. In addition there was an unusual flow of saliva.

The patient was a healthy person, denied all general questions, and said he had never been ill before. The diagnosis in the day-book was, therefore, "Diffuse alveolar periostitis of the upper jaw, together with catarrhal stomatitis."

As the appetite was good and digestion in order, in the first place the tartar was thoroughly removed in several sittings, and a wash was ordered to be used for rinsing the

mouth; at the same time magnes. sulp. was given as an aperient.

After a fortnight the swelling had entirely disappeared from the gums and the teeth much less tender to the touch, but above each of the two upper canines and above each of the two middle incisors of the left side fistulous openings appeared, from which a considerable quantity of pus exuded. In probing the fistulæ portions of necrosed bone were everywhere felt, and consequently pieces of lint soaked in tincture of iodine were laid in, and this treatment was persevered in for a fortnight.

By the middle of May small splinters of bone had become loose, and finally on the 5th of June two sequestra were removed. The larger of the two was $1\frac{1}{2}$ c.m. in length, $\frac{1}{2}$ c.m. in breadth, and showed plainly the front alveolar wall of the right upper canine, from the fistulous opening of which it was removed. The smaller piece of bone was about $1\frac{1}{2}$ c.m. long, and was a portion of the front alveolar border of the upper right incisor.

The patient was then prescribed:—R. Acid. salicyl. 6, 0, Spir. vini rectif. 15, 0, Aq. distill, 200, 0, diluted, to be used three times a day as a mouth wash, and to take iodide of potassium.

At the beginning of July the teeth had lost all sensitivity to the touch, the patient could bite without any uneasiness, the gums were firm round the neck of the teeth, only the right canine was bare of alveolus and gum from the end of the fang, and the upper right incisor was bare about this (o) much. The other three fistulous openings, after several small pieces of bone had come from them, were entirely healed and the patient able to use the left side for eating, whilst the right could bear cold water with but slight feeling. Every week the whole of the upper alveolus is painted with iodine.

In remarking on this case in a lecture, Dr. Hollænder observed that these cases of idiopathic alveolar periostitis which embraced the whole of the jaw were extremely rare. It is well known that periostitis of the tooth fang passing into the alveolus frequently occurs on the one hand in a carious tooth through exposure of the pulp, and on the other in consequence of intoxication from different poisons, such as phosphorous or quicksilver being introduced into the mouth. But that the whole jaw from one side to the other should

be affected, the teeth being perfectly healthy, and that the well-known consequences of periostitis, namely, Necrosis of the alveolar process, should be systematically developed is an extremely rare occurrence.

Professor Albrect remarked, indeed, in his monograph upon "Diseases of the Fangs" that the rheumatic process from the fang of a tooth frequently became localized in the entire jaw, but then there were always present other symptoms of rheumatism either in the head or neck. Nevertheless, if, according to Albrect, the rheumatic process seized the cavity of the mouth and teeth, there must first, on the other hand, be precedents of disease in the teeth which would serve, so to speak, as starting points for the rheumatic poison.

In our case nothing of the kind was there. The teeth were entirely healthy, and the gums, according to the patient, had from the beginning been concerned in the disease, so that really one would, as was indeed the case in a superficial examination, be inclined to consider it Stomatitis. If the patient can partly make use of his teeth, and has lost all pain, still we can by no means allow that he has come out unharmed from this illness. On the labial side of the alveolus the exposed canine will probably not withstand outside influences, and equally so the incisor, though only the point of the fang is exposed, is in similar danger.

Energetic measures should have been taken at the beginning of the illness, and strong local blood-letting and internal drastics should have been made use of, so that the disease might have run a quicker course.

It is to be hoped in the future that such a case will not be looked upon as scorbutic, and that it will be remembered on the one hand that scorbutis is not of frequent occurrence, and on the other that scorbutis does not begin in the mouth, but pre-eminently in the joints of the lower limbs, only when in a few days different severe pains, principally in the fossa poplitea, are present, with similar appearances in the mouth as in our patient, with the difference that strong parenchymatosical bleeding of the gum, mucous membrane of the cheek and the tongue are likewise present, which entirely failed here.

On the Attachment of Teeth.

PART II.

On the Nature of the Alveolo-dental Membrane.*

By CHARLES S. TOMES, M.A., &c.

The teeth of mammals are, in the great majority of cases, planted in sockets of bone, which fit them loosely, the intervening space being occupied by a softish vascular tissue, going by the name of the Alveolo-dental Membrane. With it, in a diseased condition, we are constantly concerned; and we should do well to acquaint ourselves, so far as may be, with its relations in health, so that we may be in a better position to understand its diseases.

Teeth attached by membrane may be grouped into those which are attached by membrane without being situated in bony sockets, and those which are attached to the walls of bony sockets by the interposition of a membrane.

1. Each tooth is formed from a tooth-germ, which consists of a papilla-like dentine bulb, and of an enamel organ capping it. The dentine germ appears simply as an elevation of a part of the mucous membrane at the base of the jaw, without at first any structural alteration.

Then it becomes differentiated in structure, and next, calcified over its apex: as calcification reaches towards its base, and the tooth is thus approaching completion, the mucous membrane immediately contiguous to the base of the papilla (there having thus far been no distinction of the one from the other, the two tissues blending completely one with the other) becomes fibrillated; and by the time calcification is complete, the tooth is held firmly in its place by bundles of strong fibres at one end attached to its surface, and, at the other, losing themselves in the mucous membrane adjacent to it.

The point to be kept in view is this: that the tooth is held in place by a fibrous membrane, the fibrous membrane being nothing more than that same tissue from which the dentine itself was developed, which has subsequently undergone this transformation. Starting from this, the simplest possible method of attachment, we shall possess a vantage-ground for investigating.

2. Attachment by the means of a vascular membrane to the bony walls of a socket.

* Read before the Odontological Society.

If we take the jaws of a foetus at a period when the jaw-bones are but little calcified, we shall find a state of things similar to that represented in fig. 1 ; that is to say, there is a good deal of space between the tooth germ and the forming bone, and this space is occupied by tissue similar to, and in no way divided off from, the formative organ of the dentine or dentine papilla.

In the further progress of the development of the tooth, this surrounding tissue becomes, as it were, squeezed thin between the bone and the rapidly-increasing tooth germ, and it becomes finely fibrous in consistence. In this stage it is known as the tooth capsule, or investing sac of the tooth germ ; and it has been described with a minuteness of detail which tends to exaggerate both its importance and its distinctness of existence. It is nothing more than the whole of the connective tissue which intervenes between the tooth germ and the bone, and the dentine papilla at its base blends completely with it, there being no line of demarcation between the two.

This external tissue, this tooth-sac, is what becomes the alveolo-dental membrane. The point which I have been striving to bring into prominence is, that it originated from identically the same tissue as the dental pulp, and that in all its ultimate differentiation it retains at one point—*i.e.*, the apical foramen—a continuity with it.

It is a thin sheet of finely fibrous connective tissue, rich in blood-vessels and nerves, and not unlike the periosteum of a bone, save that it is quite without elastic tissue. Above, *i.e.*, at the neck of the tooth, it bleeds insensibly with the gum ; at the apex of the root, as before said, with the pulp. It occupies the whole space between the root of the tooth and the bone, and is therefore thicker in some places than in others, and it serves alike as periosteum to the bone and organic covering to the cementum. In other words, there is but one membrane for the two. The tooth has no "peridentium" separate from the "periosteum," as has been stoutly maintained by several authors, who can never have seen a section with both hard and soft parts *in situ*.

As has been before mentioned, it is a fibrous membrane, its fibres, generally speaking, running across between the cementum and the bone ; it is perfectly easy to trace bundles of fibres the whole way across, losing themselves at one end in the bone, at the other in the cementum. They do not by

any means always run horizontally across ; more commonly the fibres pass obliquely upwards or downwards.

When a tooth is extracted the alveolo-dental membrane is torn, the greater portion remaining behind in the socket, while a thin layer of the network remains adherent to the cementum, and comes away with it.

The New Society of Surgeons Practising Dentistry.

We have received the following communication from an "Occasional Correspondent" in New York :—

Lately I have heard from town, and also seen in the *MONTHLY REVIEW*, much about the forming of a New Dental Society in opposition to the present Odontological Society, and to the exclusion of all dentists except those holding the M.R.C.S. or other medical degrees. I think it is well to ventilate the views of those of us who are far away, and, therefore, unable to attend the meetings of such Society.

I should much like to see a new Society started, even in opposition to the Odontological Society. I think it would cause an increased development of enthusiasm for our work ; but, when a set of men put themselves up as being far above those who have only the dental degree, and wish to keep separate from them, I maintain it shows a snobbishness and priggishness which is sad to look upon.

Again, when I hear a professional brother talking very extensively about deputing to skilled mechanics all mechanical works, and classing such works amongst orthopaedic appliances, I say to myself, " This man has not the mechanical ability or knowledge to make or direct the making of them himself, and most likely he has not studied at the bench as all candidates for the L.D.S. are supposed to do." And if he is not able to fully carry out such mechanical work with his own hands, how can he be competent to direct or criticise the work of others ?

Besides, what is the degree of M.R.C.S. ? Why nothing but a licence to practise surgery. It is by no means the highest degree obtainable in this subject.

I should much like to see again a still newer Society formed of F.R.C.S.'s to the exclusion of all who hold a lower degree.

March 9th.

(Signed) M.R.C.S.E.

Odontological Society of Great Britain.

ORDINARY MONTHLY MEETING, APRIL 3RD, 1876.

C. VASEY, Esq., President, in the Chair.

PRESENTATION TO THE LIBRARY.

The PRESIDENT announced that Mr. James Parkinson had presented six numbers of the *Microscopical Journal* to the library.

CASUAL COMMUNICATIONS.

Mr. C. J. Fox brought before the Society for examination a patient whom he had seen that morning at the Dental Hospital. The case was thought of some interest by Mr. Christopher Heath, who had paid considerable attention to diseases of the jaw. At first he (Mr. Fox) was inclined to think it was a case of fracture; but, after further inquiry, he could find no history of any fracture. There was no sign of any blow of any kind, and that led to the inference that there must be loss of substance from necrosis. There was absolute division of the jaw and necrosis of the alveolus, allowing the teeth to be moved. On questioning the patient rather closely, he admitted that, besides having small-pox, he had a very bad attack of syphilis, from which he suffered very much.

In answer to the PRESIDENT,

Mr. FOX said the patient was a temperate man, and denied ever having had a fall or blow when in a state of intoxication.

The patient then entered the room, and was examined by several of the members present.

Mr. CHARTERS WHITE asked Mr. Fox if he intended to treat the case in any way mechanically, because a short time ago he (Mr. White) saw a case where the front of the jaw was necrosed, and a vulcanite frame was fixed in for supplying the missing teeth. This kept the parts of the jaw in apposition, and the lady found the appliance very useful indeed. This necrosis resulted from a blow caused by her babe's head striking against the lower jaw. He thought that Mr. Fox's case might be amenable to the same treatment.

Mr. OAKLEY COLES, referring to the case, said that the central fragment seemed to be quite detached, and the necrosis to have commenced in the lower part of the jaw—

in the symphysis at the lower border rather than in the upper part. This was further borne out by the fact that the gland on the left side was considerably enlarged and thickened, and there was a fistulous opening underneath the chin, which was discharging three weeks ago. He had only seen one other similar case, and that was where a disease of syphilitic origin commenced in the gland and produced a fistulous opening below the jaw, and afterwards a piece of bone became necrosed in the lower border on one side of the jaw. He thought it would be well if Mr. Fox would leave the case alone until the necrosed bone and the teeth came away of themselves, rather than attempt to remove them, as their removal would probably set up such an amount of irritation as would involve a considerably larger portion of the jaw than was at present the subject of disease. He believed that in old syphilitic cases, if the patient was placed under a course of iodide of potassium and the general health looked after, as soon as the bone became separated and was removed there was a great effort at reparative action, and a strong band of fibrous union would be obtained between the two fragments of jaw, on which an artificial appliance could be placed with far better result than by keeping the teeth in the jaw separated by a mechanical appliance.

Mr. Fox said at present his idea was that he should remove the teeth which were projecting so much, then wait till the sequestrum was fit to be removed, and as soon as possible to get the parts in apposition and then make a denture afterwards.

Mr. TURNER said it seemed to him that the cause of division or fracture in the lower jaw was muscular contraction, the two fragments having been deprived of the key-stone that kept them in position—namely, the central part or symphysis of the lower jaw. If this kind of contraction was allowed to go on unchecked, and if the sequestrum was removed, there would be considerable difficulty in gaining proper power over the muscles which had been allowed to go on contracting for a year or two. In the case brought forward by Mr. Fox, he (Mr. Turner) did not think it necessary to remove the bone partially loose; but by putting an interdental splint upon the lower jaw, the fragments could be kept apart, and they would be retained much better in their place when the sequestrum was removed.

Mr. COLEMAN quite agreed with the remarks of Mr. Turner. The objection to removing the sequestrum too early was that certain portions of living periosteum, which it was essential to retain for the formation of new bone, would be removed with it. He could not agree with Mr. Coles as to the reparative action in syphilitic necrosis. His own opinion was that there was a very small amount of reparative action, as very often the periosteum perished with the bone.

Mr. COLES explained that he referred to reparative action in the fibrous tissues, and not to bone.

Mr. WOODHOUSE mentioned two cases (ladies) in which he discovered a fourth molar existing on the left side of the lower jaw. The first case was that of a lady who was in India. She had considerable pain in her jaw, which afterwards resulted in inflammation and suppuration, which relieved itself by a sinus at the angle of the jaw. After two years she went to England and consulted Sir William Ferguson, who brought her to him. He examined the teeth carefully, and the lower wisdom tooth was apparently perfectly healthy, the only thing he could detect being a slight blackness on the enamel of the tooth. It was found afterwards advisable to remove the tooth, which was done. The posterior fang having broken off, was left behind. When probing for it he found an opening behind the wisdom tooth at the angle of the jaw, in which he traced the crown of a tooth, which he extracted with a pair of fine stump forceps without the least difficulty, as it had not the slightest hold on the jaw. Seeing there was such an enormous cavity, he thought it wiser not to attempt to remove the remaining portion of the true wisdom tooth. He saw the lady a year afterwards, before she returned to India, and she had no irritation whatever from the remaining portion of the tooth. On examining the other side of the mouth, he could not perceive a fourth molar. About two years afterwards a similar case presented itself to him, also in a lady's mouth. In this case the tooth had made its appearance through the gum; it seemed to be healthy, and he advised that things should remain as they were. He had again examined the mouth on Saturday last, and found that the supplementary wisdom tooth was decaying, and also decaying the true wisdom tooth, and he therefore advised its removal. Contrary to expectation, he found it was a large well-formed

tooth. The anterior portion of the crown surface had decayed, and also the back of the true wisdom tooth, and being under the angle of the jaw he found great difficulty in removing it. He exhibited models of the cases, which he expressed his intention of presenting to the Museum.

Mr. MUMMERY mentioned a case which had been in the hands of his son. The patient was a civil engineer, residing in South America. On his return to England he consulted Mr. Mummery, jun., and at that time there was considerable stiffness in the jaws, which could only be separated to a very slight extent. The gum was very inflamed and thickened behind the second molar. Free lancing, with incision of a portion of the gum, gave great relief. Three fistulous openings existed on the neck, one below the angle of the jaw, another about an inch above the clavicle, and an intermediate one, which had nearly closed. These were discharging thin pus. A probe was introduced into the upper opening, and passed upwards and backwards in the direction of the lower wisdom tooth, which, after the lancing, could just be detected by a probe pointing forward and inward. As the patient was about to return to South America, and the openings had not closed, it was deemed advisable to extract the tooth, and it was extracted with great difficulty under chloroform, the alveolus being unusually strong and the tooth being very deeply embedded. The extraction was at last accomplished with a pair of very strong bladed bayonet stump forceps. The tooth proved to be a large one, and of abnormal form. About a fortnight later the fistulous openings had all closed, and the patient was entirely free from pain.

Mr. FELIX WEISS, L.D.S., then read a paper "On the Retarded Eruption and the Extinction of Wisdom Teeth. Case of Abscess with Fistulae from buried Inferior Dens Sapientiae, lying horizontally below the Alveolar Margin," &c. —

Dentition having proceeded to the eruption of the second molar, the maxilla are now fully occupied, and a pause takes place. We wait for the elongation of the jaw backwards, in normal cases from three to five years. If all be then favourable, another molar is added to the circle; but the eruption of this third molar is not generally unattended with pain. We have frequently a series of disturbances, the least of which is a certain amount of suffering to the patient, at times sufficiently distressing to call for professional attention; and upon examining more minutely the results, we perceive that the second molar standing in front and the termination of the alveolus behind, the wisdom tooth not

having a predecessor, and its development being carried on beneath the base of the coronoid process, when the time arrives for its eruption, it has no space reserved for it, and in the generality of cases it cannot take its place without a certain amount of suffering, more particularly in the lower jaw : nor is this limited only to the part affected ; it extends to the surrounding structures, causing the neighbouring muscles to become more or less rigid, and setting up inflammation, attended sometimes by suppuration, the pus not unfrequently burrowing around the periosteum of the jaw, giving very much the appearance of necrosed bone, and, indeed, occasionally leading to necrosis of the jaw. Nor is this the only annoyance resulting from the attempted eruption of the third molar. Frequently the tooth takes a different direction, and remains buried in the alveolus, or even ascends the ramus of the jaw, or becomes impacted against the second molar.

If we continue our observation, we shall also find that this particular tooth varies not only in shape, but also in size. On the right we may have a perfectly-developed molar ; on the left a cubic-crowned tooth, resembling the lower bicuspid. But that which more than anything else distinguishes these strangely variable teeth is the irregular periods at which they are erupted, and that they are in many instances absent altogether. Feeling that some reliable statistics on this interesting subject would be desirable, and having failed to discover any record that can guide us to a true estimate of the number of wisdom teeth absent in a given number of cases, I some time ago began to draw up such a record. The plan I adopted is very simple. I commenced by excluding all cases under the age of 26, taking particular care that the wisdom tooth had not been extracted, and where any doubt existed did not register the case at all. I took down first the name of the person, as a guide for future examination, if necessary ; then the age, followed by the present state of the mouth as regards the wisdom teeth ; and lastly, remarks upon any abnormality that might present itself. In private practice this is a longer and a more tedious investigation than any one unacquainted with the detail of an operation-room could readily believe ; but it has this great advantage ; you can refer to your list and vouch for the accuracy of your statistics. I am sorry that the number of cases is not so large as I hope eventually to be able to classify ; and I may here remark that arrangements might be very readily made at our Dental Hospitals to record such statistics. There are many points that I think might thus be satisfactorily elucidated. According to my observations,

Of 312 persons over 26 years of age,

152 had deficiencies of wisdom teeth ;

29 had none at all ;

44 had deficiencies in the upper and lower ;

78 had deficiencies in the upper only ;

32 had deficiencies in the lower only ;

21 with deficiencies were over 50 years of age ;

In 312 persons, 304 wisdom teeth were absent.

It will readily be understood that, to obtain a return of any great value, of persons having deficiencies of wisdom teeth in advanced life, a very large number of mouths must be examined, and the greatest care taken that our records are carefully compiled ; for it is sometimes difficult to decide whether the tooth has been erupted and extracted, or

never erupted at all. As a rule, where the tooth has never been erupted, the gum will present a square appearance; but where it has been extracted, the absorption will have defined the ridge of the maxilla.

That the wisdom teeth are erupted late in life we have plenty of evidence to prove, but that they are sometimes absent altogether I am fully persuaded, and that they take the first place as absentees my late examinations seem to indicate. I have seen several mouths where the third molar has been cut after the age of 70, and in one case a patient had attained his 84th year. I have only been able personally to record a deficiency of laterals in four instances, and in two of these the teeth were cut later in life, after wearing artificial work.

I have particularly noticed that wherever any of the fourteen permanent teeth are absent, the wisdom teeth will be found to be missing also. In the table of deficiencies of wisdom teeth already quoted, I have registered two instances where the superior lateral incisors have never been erupted, and in both these cases the wisdom teeth are also absent, although the patients are over 30 years of age. I can mention another person, aged 40, in whose mouth the second bicuspid of the lower jaw is wanting, and in its place we have the temporary molar, while in both the upper and the lower jaw there are no wisdom teeth. A similar case is also entered where the temporary molars are standing on both sides, but neither in the one jaw or the other are there any signs of the third molars. This lady's age is over 40. As I have said, in every case coming under my notice, where any deficiency of permanent teeth exist the wisdom teeth are also absent.

Several very interesting questions spring out of these investigations,—questions I should like to see this Society endeavouring to answer. May not the wisdom tooth remain through life unerupted? You will observe in various specimens, jaws where the teeth are ground down, giving every indication of years of wear, and where the subjects must have passed the meridian of life, and yet the third molar remains buried in the alveolus.

Again, may not the original tooth-germ be sometimes absorbed, leaving no vestige of its past existence? I am sorry that I am not in a position at present to bring forward many preparations to establish my views on this subject; but as far as those investigations have extended, I have no hesitation in stating that I believe such to be the case. In one lower jaw I had an opportunity of examining, the fourteen teeth were all perfectly formed; but there was no indication of a wisdom tooth ever having been developed. In another, the fourteen upper teeth were all thoroughly erupted, but no third molar could be discovered. I believe, Mr. President, that the extinction of the *dens sapientiae* opens a field for much interesting research well worthy of the consideration of the profession; and I look with considerable interest to the remarks my paper may possibly elicit from the members of this Society.

In Dr. Darwin's "Descent of Man," after remarking upon the gradual disappearance of the wisdom tooth, the smallness of its size, and the late period at which it is erupted, he goes on to contrast the number of the fangs of this tooth among civilised people and the earlier savage races.

It should be borne in mind that this change is more perceptible in

the upper than the lower ; indeed the lower wisdom tooth, where it is erupted, is usually of the normal size, and this will account, in some measure, for the disturbance frequently created by its eruption in that jaw more than the upper. The two fangs are certainly somewhat flattened and turned backwards, but in other respects the tooth has very little changed. In the upper we have a gradual merging of the three fangs into one, and the size of the tooth, as I have said, is becoming smaller and smaller, until at length we very commonly find the upper dentes sapientia no larger than lower bicuspids.

Mr. COLEMAN said the first portion of the paper opened up many subjects for consideration, especially in relation to the views which had lately been brought so prominently not merely before the profession but before the public at large by Mr. Darwin and Mr. Herbert Spencer. With regard to the second portion of the paper, he mentioned an interesting case of a lady past middle age, and remarkably stout, who had been attended for abscess at and below the angle of the right lower jaw. Sir James Paget, under whose care she was, after examining the jaw carefully for dead bone, struck against something, and after making an incision a view was obtained of a portion of one of the cusps of a wisdom tooth, embedded in the bone, from which blood as well as pus welled out. After considerable difficulty the tooth was removed in two portions, the lower wisdom tooth on the right side lying almost horizontally across the jaw, the crown of the tooth pointing pretty much in the direction of the masseter muscle. The second case was that of a gentleman who had suffered for twenty-four years. He had been treated during that time by eminent surgeons for diseased bone, and had even had the lower jaw trephined with the view of opening up an internal abscess in the bone, but unfortunately the trephining never hit upon the impacted and misplaced tooth. In this case Mr. Clover first administered nitrous oxide, and he made a free incision to the bone. The patient was then allowed to recover from the nitrous oxide until bleeding had almost entirely ceased ; and then, with the aid of an elevator and a long pair of forceps, the wisdom tooth was without much difficulty removed. The first patient got rapidly well ; but the second patient, who was in a very indifferent state of health, recovered very slowly, and although it is some four or five years since the operation was performed, there was still a very considerable thickening about that part of the jaw.

Mr. C. S. TOMES said that in the case of some of the

higher monkeys, such as the gorilla, the third molar tooth was as large, and sometimes larger than the first and second molar, but instead of its having a stunted soft crown, it would have the ordinary characteristic arrangement of the cusps. Further than this, it was generally cut before the attainment of sexual maturity, that is, before the creature had cut its large canine teeth. In the lower races of mankind it would be found that the wisdom tooth was a large functional tooth. It preserved the characteristic pattern of cusps. The upper wisdom tooth would have an oblique ridge, and the second wisdom tooth would resemble a second lower molar. In the civilised races it would be found that it was quite exceptional for the wisdom tooth to be a characteristic molar, and quite exceptional for the lower wisdom tooth to have the four cusps distinctly and well developed. In any group of animals which were obviously united by descent, the tooth, or any other organ, which was gradually disappearing, would be found to be a variable organ. An organ which was in full use did not vary much. The same causes which had been brought together by Darwin under the name of natural selection prevented it from doing so, but so soon as it was brought into functional inactivity, then it became 'very variable. The mere fact of variability would lead one to suppose that the organ is disappearing. He mentioned a case that occurred in his own practice in which a patient had suffered from intense neuralgia in the eyeball. On looking into the mouth there were no decayed teeth, but the upper wisdom tooth stood very nearly horizontal, with the masticating surface looking outwards. The wisdom tooth was extracted, and the neuralgia disappeared. A year afterwards, very much to his surprise, the patient came back, and in the same situation as that in which the wisdom tooth formerly was there was the cusp of another tooth, and two years from the time in which the case had been presented to him, an additional wisdom tooth had made its way down and was almost normal in position, and there was no recurrence of neuralgia. He mentioned another case which did not bear so strictly on the question of wisdom teeth. The patient had a small fistulous opening and an obstinate discharge, although the mouth was edentalous. All the teeth had been taken out for the purpose of putting in an entire set. The patient gave an account of the case which subsequently

turned out to be untrue. She declared that the discharge had never existed prior to operative interference. On probing, he found nothing ; and he then enlarged the fistulous opening, and found unquestionably the crown of the tooth, which proved to be canine, lying very nearly horizontal. The crown was all honeycombed and stunted and puckered in a peculiar sort of way, but still it could not be doubted that it was a canine. The patient was 67 years of age, and had never suffered the smallest inconvenience. The case was instructive rather as showing how a patient's own statement may very often mislead one.

The PRESIDENT said he had removed a long bicuspid under similar circumstances as the last case related by Mr. Tomes. It had developed backwards, as if it had run along under the roots of the molar tooth, and it was not seen until all the teeth were lost and another set of teeth had been worn for two or three years.

Mr. TURNER said that by the disappearance of the wisdom teeth the profession were losing about 12 per cent. of their sources of revenue ; and it had been a source of great comfort to him to hear of the cases brought forward by Mr. Woodhouse and Mr. Tomes, which showed that nature was making a struggle in their behalf. For his own part, he wished it every success. (Laughter.)

Mr. MUMMERY said that among the more powerful and energetic races of Africa he had found the third molar present in the lower jaw, but in the more enfeebled races he had found the third molar absent.

Mr. GEO. BUCHANAN asked if any member present had ever met with a case where, after the first molar had been extracted in youths under fourteen, the wisdom teeth were not all in and well developed.

Mr. C. WEST said that wherever there was a well-formed dental arch, accompanying that there was a well-formed wisdom tooth ; but where there was a deterioration of the physical structure of the patient there were abnormal appearances in the wisdom teeth.

Mr. TURNER said that before the age of fourteen he had had his anterior molar tooth extracted, and since then the second molar had been extracted, but the wisdom tooth had not made its appearance.

Mr. WEISS having briefly replied, the meeting separated.

Odonto-Chirurgical Society.

ANNUAL MEETING, HELD AT EDINBURGH, MARCH 13TH, 1876. W. A. ROBERTS, Esq., M.D., L.D.S., President, in the Chair.

The minutes of the previous meeting, as also the annual report by the Treasurer, were read and approved of.

Mr. J. O'Duffy, Dublin, was balloted for, and elected a member.

Messrs. R. Hooper and G. W. Watson, Edinburgh, were proposed for membership.

The following members were, upon the recommendation of the Council, elected office-bearers for the years 1876-77:

President.—G. Buchanan, Esq., Glasgow.

Vice-Presidents.—J. K. Chisholm, Esq., L.D.S., D. Hepburn, Esq., L.D.S.

Treasurer.—P. Orphoot, Esq., M.D.

Secretary.—A. Wilson, Esq.

Curator.—D. W. Hogue, Esq., M.D., D.D.S.

Council.—W. A. Roberts, Esq., M.D., L.D.S., W. Campbell, Esq., L.D.S., Dundee, C. Matthew, Esq., J. R. Brownlie, Esq., L.D.S., Glasgow.

The thanks of the Society were voted to Mr. FINLAYSON (Leith) for his demonstration of the different processes involved in the production of cases in continuous gum work, given to the members of the Society at an adjourned meeting held at his residence on Saturday, 11th December, 1875.

The PRESIDENT.—Gentlemen, before leaving this chair I have taken the opportunity afforded me to give you one or two cases, out of many I have recorded in my case-book, which I thought might possibly prove somewhat interesting, which I will style "odds and ends."

As our time is limited I shall confine myself to a mere sketch of those cases, and will crave your indulgence for a short time while I lay them before you, such as they are. The first case I shall refer to was a chloroform case.

On a Saturday afternoon, after my assistants had left for the day, Mr. B—, a stout gentleman of about 50 years of age, called upon me to have the left upper wisdom tooth removed, and expressed a wish to have chloroform; I objected, upon the plea that my young men had left for the day, and stated, I always preferred having one of them present when I administered chloroform. I was over-persuaded, however, Mr. B— saying he was sure he would be "as quiet as a lamb." I put him under the influence of the anaesthetic, and certainly up to this point he was perfectly quiet. I had no sooner applied the forceps, however, when a violent struggle commenced. I feeling a good deal annoyed, supposing I had not put him deep enough under its influence, apologised for my apparent mistake, and gave him some more. While he was inhaling this second dose, I could not help thinking he must have been under the full influence of the chloroform after all. Under this impression, I made up my mind to act accordingly, that, once having got hold of the tooth by the forceps, I would not let go until I had it out. As before, the same result, for the moment I seized the tooth the same violent struggling went on, but being on the *qui vive*, and determined not to be foiled I held on. Mr. B—, driving his

arms furiously about, stretching himself back to his full length, so, what with his struggles and my persistency, at last the operating chair fell over, and we both accompanied it, "but I got out the tooth," the patient the while on his back in the chair and I on the ground beside him. After the extraction of the tooth, I with great difficulty rolled him out of the chair on to the floor, fearing suffocation from the flow of blood entering the windpipe. Upon recovery, his look of astonishment was most ludicrous.

Upon my explaining to him why he was in such an ignoble position, he laughed heartily, and said he was totally unconscious from the beginning, and that he had had an exciting dream, which was, that he had received a message from the country of "life and death," that he was running down to catch the train, when a Mr. Tait stopped him, and held on to him, but at last, after a violent effort, he broke away from him, and wound up his description of his dream by saying, "Eh ! man, but I gave him an awful thrashing."

I had rather an interesting case of a young lady, who, accompanied by her medical man, called to have a molar extracted under the influence of chloroform ; the whole process was quite satisfactory, but to our surprise, after the active effect had passed away, we found our patient quite sensible as to hearing, but could neither speak nor open her eyes ; she replied to our questions by smiling and nodding her head only, nor did she recover her speech and power over her eyelids for several hours afterwards ; no bad effects followed.

As I have given one case of violence under chloroform, I will confine myself to the relating one other.

A medical man, who suffered much from his teeth, came to have an offending member of his mouth removed. He was a powerful man, and fully six feet in height. I had repeatedly given him chloroform, and upon each occasion was obliged to have present no less than three assistants to hold him in the chair.

Upon one occasion he nearly overcame all four of us : he got out of the chair, rushed like a maniac round the room, roaring all the time like a bull. Whenever he came to himself he invariably burst out laughing.

Upon one occasion he was confined to bed, and sent for me to extract a tooth for him. I found him in a small, open French bed : his wife was present. I flattered myself, "surely, as he is in bed on his back, we might be able to manage him." The chloroform was given fully ; but, as in the former case, the moment I applied the instrument, the old state of matters began ; a regular scrimmage began in the bed, which ended in his pitching me from one side of the bed to the other. I certainly did not feel it a very dignified position finding myself on my back on the floor. We ultimately got a street porter and a servant to hold the patient, and even then the operation was by no means a simple one.

In all the times I have given this gentleman chloroform, the effect was the same ; perfect in its action, the patient quite unconscious of anything going on.

Since the introduction of the nitrous oxide gas, I have not given him chloroform, but the gas—and, singularly enough, on the three several occasions I have done so, he has been perfectly quiet, as far as *motion* was concerned, but he roared all the time most lustily. The last two

times he had the nitrous oxide gas was for the removal of a nasal polypus.

My friend Dr. Peddie mentions a case of his. A gentleman to whom he had given chloroform became very restless, getting up and jumping round the room like a sparrow, the worthy Dr. holding him for fear of his hurting himself, and jumping with his patient until the effect wore off.

The most amusing case I have had was where a Russian lady, while under the effects of chloroform, used very strong language indeed, expressing herself in French and Russian alternately. Every time she was under the influence of the drug the result was always the same, even to the same words. The peculiarity of this case is, only under chloroform is there the slightest approach to such an indulgence, the lady being a refined and highly-educated person.

Another lady, while under the anaesthetic, "had a dream," as she called it. Upon recovery, she told me that she had been in the country for a fortnight. She told me of all her amusements during that time; but, above all, that there was a most beautiful baby she was so fond of: but one day they tore this lovely infant from her, and forced her into a boat. When she awoke she was delighted to find it only a dream.

I may mention the case of another lady, while under the effects of chloroform, supposed she had been translated to heaven. She imagined that she saw her Redeemer and spoke to Him, but was ultimately thrust out of His presence. Upon her regaining consciousness she appeared like a person out of her mind. After a good deal of persuasion, she told me this dream: it had affected her so deeply, she declared no amount of pain whatever should induce her to take chloroform again; nor, as far as I am aware of, has she done so.

I will now content myself with chloroform cases, and doubt not each and all of you have experienced many similar cases.

Before I leave the violent cases, I should like to mention rather an amusing one; it is that of an Irish labourer, who came one morning to have a molar extracted. He had no chloroform, but instead he had plied himself well with whisky—in fact, he was three-fourths intoxicated. As soon as he was seated in the operating chair he began swearing at a great rate (rather putting my Russian lady in the shade), shouting out that if I hurt him in the least "he'd knock me down." He kept repeating this so often and so violently, I began to think it might be as well to guard against this contingency of being knocked down. I got up from the workroom a couple of assistants, and made them stand at the back of the chair, and if they saw the least attempt at violence, to pin him down. Sure enough, as soon as I had applied the instrument, up went his clenched fist ready to strike; he was at once secured. Then came my turn. Holding fast by his grinder I gave it a good shake, and said: "You drunken scoundrel! You beg my pardon at once for your shameful conduct." Still he threatened. After another good shake of his tooth, I said to him, "Well, my good friend, here you are, and shall stay till you are quiet," every now and then letting him feel by a good twist that he was at my mercy, but not attempting to extract his tooth, which I was determined not to do until I had quite subdued him. At last, he muttered out that he was sorry, and besought me to take out his tooth. This was all I wanted,

so out came the tooth: he sat perfectly quiet. My pleasant tweeks upon his molar went a good way in sobering him, for I did not spare him in the least: it was a rich scene, and highly enjoyed by the young men.

The most unlucky affair I have met with was in the case of a "young lady," that is, of an uncertain age, who was an annual patient, paying a certain fee by the year. One day she came to me to have an abscess treated; I required to open it; she was very timid, so much so that I could not persuade her to keep her head still; at last I placed my hand on the top of her head to keep it steady; you may judge of my surprise when I found the head still moving from side to side, while that which my hand was resting upon was quite steady. At once I saw what was wrong; I immediately turned myself round so that she might rectify matters without my observation, while I appeared to be busy wiping my lancet.

This wig was a most elaborate affair, covering the entire head, with splendid top knots, large comb, and long ringlets down each side of the head. Now my unfortunate blunder arose from taking off my hand just as the wig turned round, one set of curls hanging over the nose, the other at the back of the head. No one could have acted more delicately in the affair than I did, yet I never saw that lady again after that day.

As to the nitrous oxide gas; not having had so many cases as of chloroform ("of which I have had 4,000, and about 700 cases of gas"), I have not, of course, so many cases of interest to report. I, however, may mention one or two. The first was that of an English clergyman, who desired to have the gas; he was extremely nervous, so, at his request, by way of giving him courage, I had to explain the whole process to him, his wife sitting in an easy chair in the room. While talking to him, viz., my reverend patient, the bag was filling all the time. My attention being taken up with the required explanation, I quite forgot the filling of the bag, when all at once it burst with the report of a pistol, up started the patient, he bolted out of the room, and was up stairs into the drawing-room like a shot. But the most amusing part of the scene was the perfect coolness of the lady, who was sitting quite placidly in her chair. She said, after her husband's sudden disappearance, "Poor, William, he is so nervous." "Of course," she continued, "that is the usual way you give the gas, isn't it?"

I am almost afraid of tiring your patience, but I should like to refer to a rather startling effect produced upon a young lady of about fifteen years of age. After the effect of the nitrous oxide gas was produced, and the tooth extracted suddenly, she became as rigid as a stone, her body bent backwards to a most unpleasant degree. After application of cold water to the face, friction, &c., she soon recovered, and exhibited no further disturbance than is usual after the inhalation of the gas.

Last week I had a similar case. This was that of a boy twelve years of age, the treatment being the same as in the former case, and with the same satisfactory result.

These cases happening so near to each other in time, and so alike in every way, I should, had we made the gas ourselves, feared there was some impurity present, but as I always use the gas prepared by the Messrs. Coxeter, I can only look upon it as a coincidence.

I had an unpleasant case in that of a lady, from the country, while

under the effects of the gas, passing her urine freely—a most unpleasant accident for all parties.

One more case and I have done. I must confess it is not a very pleasant subject, but certainly characteristic.

A young lady, about 30 years old, wore a pivoted front tooth; by accident she swallowed it; she called for advice, was recommended to eat solid food, and not to take any medicine. She at the same time got the impression for a new tooth. To our surprise she called the next day saying she would not require the new tooth, as she had found the old one. She had searched for it with a piece of stick, and having thus found it, wished it replaced, which was done. I suspect you will be inclined to say, as we did at the time, "The nasty body."

I have, as no doubt most of you have done, met with very ingenious substitutes for artificial teeth, made by patients for themselves.

One lady came to me to get an upper set. She asked me for a pair of scissors; with these she cut some threads that were about a bicuspid, she then took out of her mouth a string of small pieces of bone; she explained to me that, living far in the country, she had fallen upon a plan of her own to supply the deficiency in her mouth in the mean time, and this was, she had filed these bits of bone out of the handles of old tooth-brushes. She then pierced one end of each piece with the point of her scissors, strung them on a silk thread, and tied them in position, and wonderfully well they looked, I can assure you.

The next I should like to mention was that of a gentleman, also from the country; he had lost his two upper front teeth, I believe from an accident; he had filled up the space with a piece of cork, and splitting a quill fitted pieces on the cork to represent the two teeth he had lost.

Not to multiply cases further, I will only mention in conclusion a stopping case, the patient being a gentleman shortly to start for India; he wished a tooth stopped, which was done in gold. He expressed a wish to have his mouth carefully examined, as he was to be abroad for some years, this was done, a small decay was discovered, until we arrived at the eleventh small cavity; at this stage the gentleman looked up in my face with a waggish smile, and said, "Doctor, I think you are making the holes." In after years he thanked me warmly for the good I had done him, not having required any Dental operation during his absence of six years.

I could give you many more such cases as I have now had the pleasure of doing, but I must really not trespass on your time further upon these subjects—not very scientific ones, I freely admit.

I have now, gentlemen, come to the end of my reign as your President, and before I resign my "staff of office" to our President elect, viz., Mr. George Buchanan, of Glasgow, allow me to thank the members of the Society, the members of Council, and last, but not least, our excellent Treasurer, Mr. Hepburn, as also our worthy Secretary, Mr. Wilson, for their uniform support and sound advice during my term of office.

It is now my pleasing duty to inform you of the continued prosperity of the Odonto-Chirurgical Society. The only thing we have to regret is the absence, for a lengthened time, of one of our oldest members from indisposition, and that of one or two members from other causes.

We have had excellent papers during the session, I do not like to

particularise, but I cannot refrain from alluding to one of these on "Shrinkage of Amalgams," by Mr. Brownlie, of Glasgow, which was thought worthy of discussion in London as well as here.

Nor can I allow myself to let this opportunity pass without referring to the generous conduct of Mr. Finlayson in devoting an entire day to show to the members of this Society practically the process of mounting pieces in mineral, called the "continuous gum work." A more interesting day (to say nothing of the elegant collation provided for us as well) I am sure those members of the Society who were present will agree with me we have not experienced for a long time, and is a pleasing result of the good feeling produced by our associating together as a Society.

When the simplicity of the whole process is seen, it excites our admiration when compared to what mineral block and tooth-making used to be some thirty years ago, as Mr. Buchanan and Mr. Cormack will bear me out in saying; along with myself, they had their own share of such work. I am sure neither of these gentlemen will ever forget the widow of a mineralogist (who lived in Register Street), and supplied us with felspar, rock crystal, "titanum," &c., and whom they dubbed with the name of Mrs. Rock Crystal. I fear I have taken up too much of your time, yet I will intrude still a little further on your patience, while I frankly confess when you elected me as your President two years ago, I accepted that honour with a feeling of nervousness, knowing my own inability to do full justice such a position required of me, and yet I still further confess I have a feeling of regret at the prospect of retiring into the ordinary duties of the Society once more.

Allow me now, gentlemen, to thank you individually and as a Society for the great indulgence you have accorded me in all my shortcomings during the two years I have had the pleasure of acting as your President.

Gentlemen, I now retire in favour of our future President, Mr. Buchanan, wishing him and the Odonto-Chirurgical Society every prosperity in days to come.

On the motion of Mr. WILLIAMSON, the thanks of the Society were given to the retiring President for the manner in which he had filled the Chair for the last two years.

Mr. BUCHANAN having taken the Chair, briefly thanked the Society for the honour they had conferred upon him.

Liverpool Dental Hospital.

The Annual Meeting of the Friends and Subscribers of the Liverpool Dental Hospital was held on Monday, the 28th February, in the Mayor's Parlour, Town Hall, Liverpool. This was the largest and most influential Meeting which has ever been held in connection with the Hospital.

His Worship the Mayor (Lieutenant-Colonel Thomson) occupied the chair, and among those present were Alderman Hubback, Dr. Kisch, Dr. Dawson, Messrs. E. Grindley, T. E. Priest, W. T. Bryan, D. Campbell (Hon. Treasurer), W. J. Newman (Hon. Secretary), R. E. Stewart, H. E. Hime, D. Marples, T. Brakell, W. Collings, G. Fowler,

T. W. Fay, C. R. Copeman, A. B. G. Rogers, R. Jones, E. A. Morgan, and C. T. Stewart, &c.

Mr. Councillor Campbell read the Fifteenth Annual Report, which was as follows:—

FIFTEENTH ANNUAL REPORT.

The Committee of Management of the Liverpool Dental Hospital have again the pleasure of congratulating its Governors and Friends on the steadily increasing usefulness of this Charity, and on a growing appreciation of its utility by the public during the year just ended. The Report of the Dental Surgeons furnishes satisfactory evidence of this; the number of admissions for 1875 being 5,867, or an increase of 404 over the admissions of the previous year. This fact alone most indisputably proves how thoroughly the poorer classes of Liverpool and its neighbourhood, for whom the Hospital was established, value the advice and assistance gratuitously bestowed upon them daily. Another matter for congratulation is, that at a recent meeting of the Council of the Royal College of Surgeons of England, it was resolved that the practice of the Liverpool Dental Hospital be recognised in connection with the curriculum required for the Diploma in Dental Surgery, so that Law 2 of the Institution is now in operation, viz.—“That the Hospital shall be a School of Practical Dental Surgery, open to all Students of Dentistry, under such regulations as shall be determined by the Committee of Management.” The Committee have to announce some important changes in the Hospital Staff:—Mr. W. J. Newman, the Founder of the Institution, and Mr. R. E. Stewart, Senior Dental Surgeon, have been appointed Consulting Dental Officers to the Hospital; whilst Messrs. E. J. M. Phillips, T. F. Austin, and E. A. Morgan have been added to the Dental Staff, with Mr. C. T. Stewart as Assistant Dental Officer. The anticipation of the Committee that the amount of successful work carried on at the Hospital would be followed by a corresponding augmentation of Subscriptions and Donations on the part of the public, not having been realised, they feel constrained to press the claims of the Institution upon the liberal attention of its friends and supporters. Having decided upon securing permanent premises for the new Hospital, though they find difficulty in meeting with an eligible building, the Committee would remind the supporters of this Charity, which is so increasing in popularity, that the estimated sum which will be required to meet the necessary outlay consequent upon removal to a more commodious building is about 3,000/-, while the amount in the Bank already contributed towards the “New Hospital Fund” is only 166/- The Committee confidently trust that by the enrolment of new donors and subscribers, and by the occasional receipt of some share in the munificent bequests so frequently made to the charities of this town, they may be permitted the gratification during the current year of seeing the New Hospital inaugurated upon a scale in all respects creditable to the wealth and public spirit of so important a town as Liverpool.

In conclusion, whilst thanking the subscribers for their continued support, the Committee look for the generous assistance of all who have it in their power to further the interests of this most valuable Charity.

Mr. Councillor Campbell also read the Treasurer's Statement, which was as follows:—

DENTAL HOSPITAL ACCOUNT, 1875.

By Subscriptions - -	£66 13 6	To Balance due Treas-
," Donations - -	10 1 0	surer, 1st January,
," Patients' Contribu-		1875 - - - -
tions - - -	16 4 2	£3 8 8
," Hospital Sunday		" Rent of Hospital,
Fund - - -	23 5 0	one year - - - -
," Balance due Treas-		32 0 0
surer - - - -	2 19 9	" House Expenses,
		Coals, Gas, Water,
		&c. - - - -
		16 12 8
		" Advertising, Books,
		Printing, &c. - -
		18 5 4
		" Stamps, Stationery,
		Collecting, &c. - -
		4 17 4
		" Assistant Dental
		Surgeon, one qtr. -
		10 0 0
		" Hospital Supplies,
		Fixtures, &c. - -
		33 19 5
	£119 3 5	£119 3 5

24th February, 1876. D. CAMPBELL.

NEW HOSPITAL ACCOUNT.

By Balance in Bank, 31st December, 1874 - -	£163 0 7
," Bank Interest to date - - - - -	3 13 2

Amount in North and South Wales Bank £166 13 9

D. CAMPBELL.

His Worship the Mayor then said,—Gentlemen, I have now the pleasure of moving “That the report and statement of accounts now presented be adopted, and that copies be printed and circulated.” In doing so, I have the greatest pleasure in being able to state that the Dental Hospital has now become one of our recognised charitable institutions. (Hear, hear.) By many it was thought that such a charity, having charge of one branch only of surgery, was unnecessary; but facts and experience have proved the contrary, and shown the usefulness and necessity of this Hospital. When about 5,000 patients are admitted to its benefits, and above 7,000 operations are performed in one year, it should surely command our support, especially as its surgeons treat of a disease that causes considerable suffering and no small amount of interference with the general health of the sufferers. Amongst the poor, diseases of the teeth are very prevalent, and many advantages are presented to the suffering by this charity, which I trust may be supported as it deserves by all desirous of alleviating the sufferings of their poorer brethren. (Applause.) I have now the pleasure to call upon Mr. Hubback to second the motion.

In responding to the request of His Worship, Mr. Hubback said,—Mr. Mayor and Gentlemen, I have much pleasure in supporting the resolution which has been placed before me. There is no doubt that the small outlay required by the working of the Institution, accounts in some degree for the comparatively small support given to it by the public. (Hear, hear.) It is but a small undertaking, and we must

remember that people are very apt to look at things from a point of view which they cannot admire unless they are large. This Institution (the Dental Hospital), although small in regard to its expenditure, is evidently large as regards the good it has been the means of doing. The report sets forth that during the last year, over 5,000 individuals have been relieved at this Hospital. Now, any one who has ever had the toothache cannot but feel that to be relieved of that unfortunate malady, is at times the greatest relief that can be accorded to human nature. (Hear.) We all know that unless a man has a good digestion he is very often out of sorts ; and we equally know that he cannot have a good digestion unless he can masticate properly ; and we equally know he cannot masticate properly unless he has good teeth. I am sure that this Hospital will therefore recommend itself to the town generally, and I sincerely trust that when the next distribution in connection with the Lyon Jones' bequest takes place, the Liverpool Dental Hospital will be remembered. (Hear, hear, and applause.) It has been remembered in connection with the Hospital Sunday contributions ; and I sincerely trust the executors of the Lyon Jones' bequest will, in their second distribution, also remember this deserving Institution. (Loud cheers.)

The resolution was carried unanimously.

Mr. Councillor G. Fowler then said,—Mr. Mayor, I have very great pleasure in rising at your request to move the second resolution, which is—"That the thanks of the Meeting be given to the President, Vice-Presidents, Committee, Honorary Treasurer, Honorary Auditor, and Honorary Secretary, for their valuable services during the past year." Mr. Mayor, this is the first opportunity I have had of being present at the Annual Meeting of the Dental Hospital, and, knowing as I do a good deal of the working of other institutions, I feel the greatest pleasure in having this opportunity of moving a resolution as a mark of the appreciation of the services rendered by the President, Vice-Presidents, Committee, and other officers, who have done such an amount of good during the year. If they could only hear the kind remarks passed upon the Institution by the poor, it would be a source of very great pleasure to them, and they would not regret the work which they have expended in connection with the Dental Hospital. (Applause.)

Mr. R. Jones : It is to me a pleasure and a privilege to simply second the resolution which has been proposed.

The motion was carried unanimously.

Mr. H. E. Hime : Mr. Mayor and Gentlemen, I may also say I have never had the opportunity of being present at the Annual Meeting of the Dental Hospital, as a member of the Committee. It now gives me great pleasure to move "That the best thanks of this Meeting and of the Subscribers be given to the Consulting Physician, Consulting Surgeon, and the Dental Surgeons, for their professional services during the past year." After the very able manner in which the services of the Physician and Surgeons have been referred to, it requires no words of mine in submitting this resolution, and therefore I now merely move its adoption.

Mr. E. Grindley : Mr. Mayor, I have great pleasure in seconding this resolution. Of all the learned or scientific Members of Societies, I think none are more noble or more entitled to the thanks of the com-

munity than those of the medical profession, especially those gentlemen who, from time to time, at great inconvenience, devote their skill and time to the relief of suffering humanity. (Hear, hear.) With regard to the Medical Officers of this Charity, I have no hesitation in saying they will bear comparison with those of any similar institution in the kingdom. (Applause.)

The resolution was carried unanimously.

Dr. Dawson : Mr. Mayor, I have great pleasure in moving the fourth resolution,—which is—“That Law 5 shall in future be as follows:—The Hospital shall consist of a President, Vice-Presidents, Governors, Treasurer, Auditor, Honorary Secretary, Consulting Physician, Consulting Surgeon, Two Consulting Dental Surgeons, Six Dental Surgeons, One Assistant Dental Officer, and Matron.” Mr. Mayor, in submitting this resolution, I cordially endorse all the remarks which have been made, by yourself and by Mr. Alderman Hubback, as to the usefulness of this Institution. I can only hope that the public of Liverpool will thoroughly appreciate its value. Looking at what Liverpool is now, and what it was twenty years ago, we find that great benefit has resulted amongst all classes of the community in regard to health. Twelve or fourteen years ago, indigestion was indigenous amongst the people; but now it is very rarely to be met with. This, no doubt, is to be attributed to the high class of Dentistry which now prevails. In proposing this resolution, I have also the greatest pleasure in referring to the fact that the Council of the Royal College of Surgeons of England has resolved that the practice of the Dental Hospital in Liverpool shall be recognised in connection with the curriculum required for the diploma in Dental Surgery. This is a proud privilege, and I congratulate you on the compliment. (Loud applause.)

Mr. C. R. Copeman : Mr. Mayor, it is a matter of considerable congratulation to those previously connected with the Institution, to find that they can show such a staff of willing and able gentlemen who are ready to take up their position as a portion of the working staff of the Dental Hospital. It is very satisfactory in this way : the larger the staff, the more efficient will be their labours ; the greater the sphere of usefulness occupied by the Institution, the more sympathy and generosity will be shown by the public towards their labours. (Applause.) I have great pleasure in seconding the resolution.

The motion was carried unanimously.

Mr. T. Brakell : I beg to move that the Committee of Management for 1876 consist of the following Gentlemen : President, Lieut.-Col. Steble ; Vice-Presidents, Rev. D. Anderson, M.A., T. D. Anderson, Henry Greenwood, Alderman Hubback, S. Kisch, M.D., David Marples ; Honorary Treasurer, David Campbell, 54 Parr-street ; Honorary Auditor, Thomas E. Priest ; Committee, Herbert Campbell, C. R. Copeman, Thomas Dawson, M.R.C.S., Edward Grindley, Robert D. Holt, H. E. Hime, Edward Jackson, Andrew Leighton, A. B. G. Rogers, R. A. Watson ; Honorary Secretary, William J. Newman, 75 Mount Pleasant ; Matron, Mrs. Clarke. Gentlemen, as most of these names are very well known to you, it needs no words from me to recommend them. In their hands I am certain the affairs of the Institution will be conducted, as heretofore, in a very able and conscientious manner. (Hear, hear.)

Mr. W. Collings : I have great pleasure in seconding the motion.

The resolution was carried unanimously.

Mr. W. J. Newman : Before proposing the next resolution, I should like to read a letter I have received from Colonel Steble, our worthy President, dated Palace Hotel, Buckingham Gate, Feb. 23, 1876. He says :—

“ My dear Sir,

“ I regret very much I cannot attend the Meeting on Friday, owing to severe indisposition ; and for the same cause I shall be prevented attending the Annual Meeting at the Town Hall, on the 28th inst.

“ With the exception of a few hours, I have been bedfast since the 11th, owing to an attack of Bronchitis. The Doctor says I am taking a turn for the better, but will have to be most careful for some time to come.

“ I consider the Dental Hospital one of the most useful Institutions in Liverpool, and deserves greater support and encouragement than it at present gets. To the poor man it is essential that his teeth should be well attended to ; to you personally, and to your colleagues, who so kindly give gratuitous services, all thanks are due.

“ Had it been in my power to attend the Annual Meeting, I would have pleaded for outside help to enable us to obtain more suitable premises for the largely-increasing number of cases.

“ Believe me, faithfully,

“ W. J. Newman, Esq.” “ RICHARD F. STEBLE, President.” And now, Gentlemen, I have to move “ That the best thanks of this Meeting be accorded to His Worship the Mayor, for his kindness in presiding on this occasion.” (Applause.) We must all agree in thinking that our Chief Magistrate has been very kind in his remarks towards our Institution, and we must cordially recognise the assistance he has rendered to the charitable institutions of the town generally. As one of the officers of the Dental Hospital, I thank him for his kindness in presiding here to-day. (Applause.)

Mr. Councillor Campbell : I have great pleasure in seconding this resolution, and also in having the opportunity of recognising His Worship’s kindness in connection with the charitable institutions of the town generally.

The motion was carried by acclamation.

The Mayor : Gentlemen, I thank you very much for the hearty manner in which you have passed the resolution. I assure you it gives me great pleasure to preside at all meetings of this kind. (Applause.)

The proceedings then terminated.

Annual Dinner of the Dental Hospital of London.

HELD AT ST. JAMES’S HALL, MARCH 16, 1876.

W. SCOVELL SAVORY, Esq., F.R.S., in the Chair.

About 150 gentlemen, from all parts of England, Scotland, and Ireland, sat down to an excellent dinner, at the conclusion of which

The CHAIRMAN, on rising to propose the first toast, said :—Gentlemen, we will drink first of all, of course, to the health of the Queen and the Royal Family. I will only say that of all classes of her Majesty subjects we, who are especially concerned in the work done

at hospitals and are necessarily more familiar than some others with pain and suffering in their endless forms, that we especially should drink with enthusiasm to the Queen and Royal Family ; for never before, I will venture to say, in this world's history has monarch so taken to heart the sorrows and trials of her people (cheers). She and the Prince and other of her children know, I should think, more about hospitals, what they are and what they do, than ever queen, or king, or prince before ; and the future historian of England, in recording the glories of the reign of Victoria, can have no fairer tale to tell than this (cheers).

The CHAIRMAN.—Gentlemen, in proposing the toast of the evening I am assured of that which all speakers must covet, the entire sympathy of those whom I have the honour to address. When I name the Dental Hospital and its Medical School, and invite you to drink their continued and increasing prosperity, I am assured of an unanimous and hearty response. The establishment of a Dental Hospital and School is an accomplished fact ; there is now no need to give reasons for their existence. They have long enough been obvious to all with eyes to see, and every year a fuller answer is given to the question in the good work done. Observe too, I pray you, this further fact, that the good done by the Hospital is by no means limited to those who work there, and to the poor who come to it for help. It tells to all the hospitals in England how such work as yours may and can be done, and if they remain insensible to the lessons it teaches, it will sooner or later shame them into better work. The time will come when, through your influence, they will not dare to have teeth drawn in a slovenly manner, or, indeed, to have them drawn at all if they can be saved for use (cheers). I do not care from this place to put forth any appeal which is based on selfish grounds, or I think it would be easy to show how all classes, even the highest, must be deeply interested in the progress of this as of all institutions whose aim is the relief of suffering or the increase of the comforts of life. Here are those advances made and those discoveries worked out, of the benefit of which there must be very few who will never stand in need. I may say, indeed, to many of those around me, as you would wish in years to come to enjoy good dinners as you have done this evening, have an eye to the future progress of the Dental Hospital. I cannot sit down without offering my most hearty congratulation to those to whom is entrusted the education of the students in Dental Surgery. You succeed, of course, because you have been so energetic, and there is so much wisdom in your energy. You recognise the fact and act upon it, that the only valid steps that can be taken for the advancement of a profession is through the education of its members. Charters and the like may be, to some extent, the outward sign of progress, may be in some measure the record that progress has been made, but after all the real state and power of a profession must be determined by the character and conduct of its members, by their claim to professional and public confidence. You see this clearly, and you advance accordingly. May I tell you with what pleasure I lately listened to the proposal of my old friend your Dean, that there should be a preliminary examination for all students of Dental, as well as for those of general, surgery (cheers). I remember how Mr. Hamilton Cartwright, at the distribution of prizes the year before last, pointed out this want, and now it is de-

cided that the want shall be supplied. There may be some who will think this hard, and others who may declare loudly that it cannot be necessary ; but surely such objections are founded upon very shallow views of what our students are and what they ought to be. If a man nowadays is to get a decent living amongst us, he must speak and sometimes write, at least, one language which he calls his own (laughter). He must spell too, if he is to take part now in one of our great national pastimes (laughter). Then, is it not well that these things which he must do somehow, he should do with tolerable accuracy ? Moreover, who that knows anything of the subject of education can doubt that, by some previous training in the knowledge of our schools, a man is far better equipped to grapple with the difficulties of those studies which are strictly professional ? Are these propositions beyond question ? Then have you done right in the latest step you have taken ? There is no fear of the practicability of your new scheme. Macaulay has, I think, said somewhere that genius obeys the same law as cotton, the supply being adapted to the demand. I do not know whether we are all prepared to go the length of endorsing this statement ; but I know well that in matters of education and examination within certain limits the supply is equivalent to the demand ; that what you continue to ask for up to a certain point you will get, and, as a rule, very little, if any, more (laughter). Yes, gentlemen, we will drink to this toast, not with empty sound, but in a spirit of determination that the great work so successfully set in motion shall be faithfully carried on. You have not only the experience of age in the example of kindred institutions to guide you, and you have shown how ready you are rightly to avail yourselves of this ; but you have an energy of youth all your own, and, for the present time at least, unity of purpose. By-and-by, as you move onwards, differences and divisions must inevitably arise, but pray pull together as long as you can (cheers). I know well that all who sit at public dinners are not hearty supporters of the cause they celebrate ; but here, as I have said, I have no misgiving. Look around me where I will I recognise on all sides well-known faces, men earnest and steadfast in the cause, men not untried, but who have shown by their own career what they can do if they will. The men who have placed themselves in the foremost rank of their profession are with us to-night. They and others have made the Hospital thus far conspicuously successful, and having put their hand to the work they are not the men to turn back from it now (cheers). I give you "The Dental Hospital and School of London," and with it the health of Mr. Thomas Hills.

Mr. HILLS.—Mr. Chairman and gentlemen, when I came into this room to-night I had no idea that I should be called upon to return thanks for the Committee of Management, the department to which I belong. The Chairman has spoken of the great success which has attended the Dental Hospital. I am pleased to say that from its commencement I have been on the Committee, and I have had great pleasure in belonging to it. I have always found the Committee determined to work with energy ; indeed, if it were not so we should not be in the position we now occupy. But do not fancy that because we are in a good position we shall always go on in the same way without that energy ; and, indeed, we really require all your help. I am very sorry that the gentleman who should have returned thanks this evening,

Mr. Campbell de Morgan, is not amongst us. A more worthy man, one who has devoted himself more successfully to the Hospital, you could not find. I am sorry that he is not well enough to be present, but I trust it will not be long before he is amongst us again. Gentlemen, we are not here to-night to ask you for money, not that we have got too much (laughter), in fact, I do not mind whispering to you that we want a little more. We do not ask you for any now, but if you have any kind friends who would like to subscribe to the Hospital do not forget to mention the matter to them. Once more let me thank you on behalf of the Committee of Management (cheers).

The DEAN (who was loudly called for) said:—Gentlemen, in obedience to your wishes, though quite out of rule, I have the great privilege of returning thanks for the School this evening. And the more sensible I am of the honour of representing my colleagues, the more conscious I am of my unworthiness to do so; in fact, I hardly know by what right I may claim to represent our School at all. I can scarcely lay claim to be one of the medical officers, and although a Dean, my position is not exactly a clerical one. So that I must apologise to my colleagues for my imperfect representation of them. But after the very eloquent speech of our Chairman I feel I need say little with regard to the course we have taken. You will remember that last year a distinguished surgeon and graceful speaker—Mr. Le Gros Clark—alluded to the connection between the College of Surgeons and the Dental profession, and to the advantages which our body derived from that connection. The institution of the preliminary examination for Dental pupils will, I believe, strengthen that bond, and will induce and enable many more of our students to avail themselves of the advantages of full membership in addition to the Dental diploma (cheers). But, gentlemen, I should like to say one thing: let us always remember that it is the possession of our own special diploma which attests our capability for the practice of Dental surgery (cheers). By all means, let those who can afford the time and cost avail themselves of the opportunity of taking both diplomas. They will never regret it, for they will thus during their pupilage acquire broad views of the science of surgery, and also secure greater privileges than the special diploma alone confers. But those who originated the educational movement twenty years ago—and the majority of whom were members of the College—distinctly advocated the principle that a strictly medical or surgical diploma does not, of itself, prove that its possessor is familiar with the details of the practice of Dental surgery. And surgeons of the highest eminence and greatest distinction always admit their incapacity for Dental practice. In returning my sincere thanks for the kind way in which you have called for me this evening, when we are met together to celebrate our Dental School, let me, therefore, most earnestly urge the claims of that diploma, which it has been one of the chief objects of our School to elevate, to the regard and respect of all the members of the Dental profession (cheers).

Mr. UNDERWOOD.—I rise as the exponent of the feeling not only of the Dental Hospital students, but I believe of a large proportion, if not the whole, of the Dental profession in order to propose the toast which has been confided to me. The name of the President of the College of Surgeons, apart from his professional dignity and status,

will be sufficient to command the respect of every member of the Dental profession. In referring, then, to the present President of the College of Surgeons, I would appeal to my brethren whether they have ever in their wildest dreams of what their success might be, expected to receive such a kindly and hearty welcome as they received from that gentleman, distinguished as he is, not only by his professional position, but by his private virtues. I am quite sure that my brethren felt it a very high honour when Sir James Paget undertook the distribution of prizes at the commencement of our last session. I wish I had the power to put before you, gentlemen, what our real feeling is towards Sir James Paget. It is, I can assure you, a feeling (I am not using the word extravagantly) of a most affectionate character. The principles that he enunciated and his own professional career hold out a bright and shining light to all our young students, which I trust they will follow. I have also to propose the health of the Board of Examiners. Whatever their duties may be (and in certain cases I believe they are painful to themselves) they are actuated by a sense of the duty imposed upon them, and I am perfectly certain that, whatever the result of their labours may be, they have honestly done their duty (bear, hear). There is a great deal in honesty of purpose; there is a vast amount of meaning in that term; and our diplomas would not be worth the paper upon which they were written if we did not feel perfectly sure that they were given after an honest and independent test to those who deserve them. Such being the case, I may say that you, gentlemen, the Board of Examiners, have undoubtedly the hearty good wishes of all the members of the Dental profession. Our desire is that you may long remain in your positions, and so stringently apply the rules of your examinations, that we may feel that none but those who are competent will obtain this diploma. Sir, the toast that has been placed in my hands is a somewhat large one, for it also includes the visitors. As regards the visitors on this occasion, all I can say is that I do not believe that we should have had them at this table unless they had felt that those whose guests they are were men actuated by an earnest purpose and had a certain end in view. How far that end may be accomplished, how far our earliest visions may be realised, we cannot tell; but I am sure that you, our visitors, have come here believing that the Dental profession have an end in view and a determination in view, and that they mean to hold their diploma as a test of their fitness to meet in professional consultation, and that they will so conduct their practice as to benefit the public at large. I now call upon you to drink the health of the President of the College of Surgeons (Sir James Paget), the Board of Examiners, and the Visitors (cheers).

Mr. LE GROS CLARK.—I have much pleasure in replying to this toast. It is a triple toast, and I hope I shall not succumb to the weight of it. I will not pretend to any remarkable difficulty or diffidence in replying; for the way in which the name of Sir James Paget was received, as it always is received in public, satisfies me that you fully appreciate his worth, position, and abilities. The way in which you responded to the mention of the College of Surgeons, when your worthy Dean was speaking, satisfied me that you are gratified, may I venture to say proud? of your connection with that body. And lastly, as I believe I am addressing a body of gentlemen who, as far as they

desire it, possess our diploma, I may reasonably conclude that we are as a Court of Examiners tolerably popular with you (cheers). My experience in this capacity, which has extended now over several years, has taught me that we are very differently regarded by three classes of gentlemen. First, there are those young gentlemen who are aspirants for our diploma, and who regard us with a certain amount of awe, mingled I trust with respect. Then there is a second class who are altogether perverse in their opinion of us—gentlemen who, to use the technical phraseology, have been “referred to their studies for six months.” These gentlemen always find that there is something radically wrong and defective in our system of examination (laughter); or they visit their misfortunes upon the head of the unfortunate examiner, who is either incapable of performing his task properly, or has been vindictive or negligent or unjust in his mode of examining, or at any rate has failed to appreciate their great worth (laughter). Now, sir, I am very much pleased to find that the remarks which have been made by Mr. Underwood were so thoroughly appreciated by you, and I trust that you all feel from the heart that the principles upon which we act are those of simple justice and desire to do our duty without regard or favour to any. The last class, to which I have already referred, those who possess our diploma, are willing to regard us as a popular and well-regulated body. After the eloquent remarks from the chair it is unnecessary for me to dilate upon the importance of your branch of the profession, I will not call it the Dental profession, I prefer to call it your branch of the Surgical profession (hear, hear). If the ills to which flesh is heir, and to which you have to minister, do not commence with birth, they at any rate attack us before we leave the cradle, or (to use the more fashionable term) the basinet; and as we attain maturity how much would the prospects of many of both sexes be marred but for the attention which you give them, by feeble imperfect articulation, by disfigurement of face, and even by impaired digestion. And lastly, as we become edentate, when we arrive at that period when the grindstones of the mill cease, or rather when there is no grindstone to grind (laughter), then life is prolonged and rendered comfortable by your services. Now where this is the case, and appreciated as it is by the general public, I need not further enforce what has been referred to by your Dean, the importance of your connection with general surgery. It is by this connection that your art, I will not call it a mechanical art, your mechanism and dexterity in extracting or stopping teeth, has been raised into the position of a scientific art. I am sure you will receive with gratification what I say in reference to the mode in which the candidates have acquitted themselves during the past year. Though there have been exceptions—exceptions which I think our Chairman must have had in his mind when he made some remarks upon the subject of general education—as a rule the candidates for the Dental diploma have acquitted themselves creditably and to our satisfaction. I am particularly pleased to say this in the presence of your Dean, who takes an almost paternal interest in all the candidates. Before I sit down allow me to add one remark: that in order to draw the bond of association between us and you more closely, a recommendation of the Dental Board has been accepted, and will be acted upon by the Council of the College, that in future any aspirants to the office of teaching Dental surgery must, in addition to other qualifica-

cations, be possessed of the Dental diploma of the College of Surgeons (cheers). I thank you for the patience with which you have listened to me, and regret that you have not had the pleasure of listening to the eloquence of the present President of the College.

Mr. COLEMAN.—Among the liberal professions that adorn this country there is no one that has received less of public reward than the medical profession. When this has been reported in high quarters, I am given to understand that the answer has been returned, "Gentlemen, the work you do is so grand, so valuable, so elevating, that you have within yourselves the highest reward, namely, the reward of your own consciences." And I quite agree with that, for pleasant as a high-sounding title may be, the best reward that an honest man can have is the reward of his own conscience. Still, gentlemen, we have rewards within our own body, and amongst the highest of these rewards are the high positions that men can take in our benevolent and medical societies—such societies as the Medico-Chirurgical, the Pathological, the Medical, the Clinical, and last of all, and eclipsing all in regard to name, the Odontological Society of Great Britain. Gentlemen, at the present time we have presiding over us an individual who, by sheer work, industry, and perseverance, has attained that high office, and is carrying out that high position with the greatest credit to himself. I beg to propose the health of Mr. Charles Vasey, President of the Odontological Society (cheers).

Mr. VASEY.—Gentlemen, in the name of the Odontological Society of Great Britain I beg to return to you my most sincere thanks for the hearty way in which you have responded to this toast so eloquently proposed by Mr. Coleman. At the foundation of the Society we had in our ranks some very remarkable men. There was one who by his professional ability gained a wide-spread reputation. He was the man who raised the character of Dentist to a far greater pre-eminence than it ever had reached before. He was a lover and a patron of art, his sympathies and aspirations were all lofty and elevating, and he gained or deserved among his professional brethren the name of King of Dentists. I refer to the late Samuel Cartwright. We had another eminent in all the social qualities and a great administrator; one who devoted himself to the profession and took the greatest interest in everything that advanced or elevated it, I refer to the late Arnold Rogera. A third, by head and heart eminently great, commanding our admiration, love, and esteem, I am heartily thankful to state we still have amongst us, and I pray sincerely that he may long survive to adorn the profession for which he has done so much. I allude to John Tomes (loud cheers). Another of whom, being present on this occasion, I will only say that the name of our Society originated with, is Mr. Edwin Saunders. To the united wisdom of these great men, assisted by the counsel of other luminaries, we are indebted for the foundation of our Society, and I am convinced that no foundation could have been more noble or more disinterested than that was. It was founded for the diffusion of knowledge and the extension of friendly intercourse among the members of our profession. I am happy to say that from the foundation of the Society until now it has met with continued prosperity. You will be pleased to hear, Mr. Chairman, that we are at present in a very favourable position indeed. Our Library becomes more extensive every year, our Museum more valuable, the list of our members more numerous,

and the balance at our bankers greater. There was only one thing that for years and years we never had, and that we have lately come into—a little opposition (cheers and laughter). Since you have elected me as your President it has been communicated to me that the Society is a very conservative one, that it places far too great a value on qualifications and examinations, and that it is a hindrance to many popular movements. But for its being in the way we might have a very popular, wide-spread organisation, that would take under its fostering wings everybody, in fact, take everybody in (laughter). I have also heard that we are lax in the extreme; that we accept any one as a member; and our doors are open to any one who comes and knocks with an introductory subscription in his hand. I am sure that you know better, and I think that these extremes of positive and negative opinions are a proof that we stand in a thoroughly sound condition, and that we have nothing whatever to fear for the future. Before sitting down I will take the opportunity of departing a little from the programme. For this pleasant meeting we are largely indebted to the labours of two gentlemen (hear, hear). Having been on the committee I know how much they have devoted themselves to the work on this occasion. I will not trespass on your time by asking them to make speeches, but I will request you to give a round of applause to those to whom we are so greatly indebted—Mr. Merson and Mr. Parkinson, jun. (cheers).

Sir CHARLES MACGREGOR having proposed the health of Mr. Savory,

The CHAIRMAN replied.—Gentlemen, I should not have ventured to occupy the chair this evening had I not the fullest confidence in your unbounded indulgence. Indeed, of this you have given me such proof I shall never forget it. I thank you very heartily for your great kindness in placing me in this chair, for your patience and forbearance, and to crown all, for the generous words in which Sir Charles Macgregor has proposed my health, and for your cordial acceptance of it. I should make a sorry return for all this if I spoke at any length now, but I cannot conclude without expressing my deep personal regret at the absence of Mr. De Morgan. I am sure you will all agree with me that this Institution owes so much to him, is so largely indebted to his admirable judgment, his administrative ability, his high character and professional rank, that his absence, even for this evening, cannot be regarded otherwise than as a great loss. We will drink to his health, and hope that for the sake of this Institution he will very soon be in his place again (cheers).

Mr. CHARLES TAMES.—I had not the smallest expectation of making a speech this evening, but I have been asked since dinner to propose the health of the Medical Schools of Great Britain. I propose it with great pleasure as being myself a teacher in our Dental Hospital and School, a school which numerically can compare favourably with a large number of medical schools in Great Britain; and I rise with the more pleasure, because it gives me the opportunity of saying one or two words upon a question which has lately agitated our minds a great deal. A proposition has been brought before the profession generally for the formation of a somewhat exclusive party among Dental practitioners. Thus far, to the best of my belief, that body has not constituted itself, and I thoroughly hope it may never constitute itself (cheers). As things now are, our school occupies an intelligible position. Certain specialities have arisen in connection with medicine which can

be better taught at a special than at a general school. Those who wish to practise ophthalmic surgery go rightly and naturally to Moorfields to learn it, and those who wish to practise Dental surgery go naturally and rightly to our Dental Hospital in Leicester Square (hear, hear). It is the wish of those most earnest for the advancement of the Dental profession that it may be possible, at some future time, to adopt some common mode of admission to its ranks, that a Dentist may enter the medical profession through a common portal, or some modification of the common-portal scheme, while, at the same time, he shall have obtained that special education which fits him to practise as a Dentist. In the meantime, for my own part, I shall endeavour to get what position I can by steadfastly working as a teacher in our Dental School, which is intimately and necessarily connected with other medical schools; and so long as I retain that habit of mind which I have inherited from a father, who stands higher in your esteem than I dare hope ever to stand, I shall not seek position by uniting myself with any limited clique or party which cannot fairly represent the great body of Dentists in the kingdom. I should hardly have spoken thus had it not been that illness has prevented my father from being here to-night. I feel that, as a young man, I am, perhaps, presuming in speaking so strongly, but as my father is not here to speak for himself, I may venture to say, knowing his opinions better than most people present, that you may take my words as in a measure representing what he thinks. I have only now to propose the health of the Medical Schools of London, coupled with the name of Mr. Langton, and to add that I regard the Dental School as standing in the same relation to them as that in which the Moorfields School stands in regard to ophthalmic science; and while it is unlikely that any general hospital can compete with such an institution as Moorfields in ophthalmic science, it is, I believe, impossible that any general hospital can advantageously undertake the teaching of Dental surgery in all its minutiae.

Mr. LANGTON then returned thanks.
The company then separated.

Correspondence.

We do not hold ourselves responsible for the views expressed by our Correspondents.

The New Dental Society.

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

DEAR SIR.—I enclose herewith copies of the correspondence which has passed between myself and the secretary of the new association, which I shall feel obliged by your publishing, inasmuch as I have heard from one or two sources that my father and myself are supposed to have been participators in a movement which we in all respects disapprove.

I am, yours faithfully,

CHARLES S. TOMEs.

37 Cavendish-square, W., March 30, 1876.

ASSOCIATION OF LEGALLY-QUALIFIED DENTAL SURGEONS,
Medical Society's Rooms, Chandos-street, W.,
March 23rd.

DEAR SIR,—I am requested to inform you that at a Meeting of the above Association, held on the 14th instant, it was proposed by Mr. S. H. Cartwright, and seconded by Mr. S. Cartwright, that you be invited to become an original Member of the same. I herewith enclose you a list of the objects for which the Association has been founded, and shall esteem it a favour if you will kindly inform me, not later than the 31st instant, whether it is your pleasure to have your name enrolled as a Member of the Association?

Yours faithfully,
To C. S. Tomes, Esq.

S. HAMILTON CARTWRIGHT.

RESOLUTIONS.

1. That the new Society be called "The Association of Dental Surgeons, Legally Qualified."
2. That it is founded to promote objects not contemplated by any existing Dental Society.
3. That the chief of its objects shall be:
 - a. The establishment of an improved Code of Ethics.
 - b. The endeavour to encourage a higher Educational Standard, both general and professional, for those who may hereafter practice the special branch of Dental Surgery.
 - c. The furtherance of modes of practice compatible only with the highest professional status.
4. That in order to carry out the above objects, the Association shall in its commencement, meet at least six times in the course of the year.
5. That the business of the Association be conducted by a Chairman, a Vice-Chairman, a Treasurer, a Secretary, and a Committee of Members.
6. That all qualified Medical Practitioners be eligible for Membership.
7. That the Society shall also consist of Honorary Members.

The following Gentlemen compose the Committee and Office-Bearers :

Chairman—Samuel Cartwright, F.R.C.S.

Vice-Chairman—S. J. A. Salter, M.B. Lond., F.R.S.

Council—H. Craigie, M.R.C.S.; T. Edgelow, M.R.C.S., L.R.C.P.; D. Napier, M.R.C.S.

Treasurer—A. Coleman, F.R.C.S., L.R.C.P.

Hon. Secretary—S. Hamilton Cartwright, M.R.C.S.

37 CAVENDISH SQUARE, W.,

March 30th.

DEAR SIR,—In reply to your note, dated March 23rd, I write to say that I have no wish to become a Member of the new Association.

And in declining the proffered compliment, I feel that I should give some at least of the grounds upon which my decision is based.

Its objects are said to be—

1. "The establishment of an improved code of ethics." Personally, I do not believe that a high standard of thought and conduct is

capable of being inculcated in the minds of those who have it not to begin with ; while those who have it will gain little by its codification.

2. "The endeavour to encourage a higher educational standard, both general and professional, for those who may hereafter practice the special branch of Dental surgery."

I, in common with many others, believed that this work had been inaugurated, and was still being carried on, as witness the recent requirements of the College of Surgeons in the matter of an examination to test preliminary education, prior to students being admitted to the L.D.S.

But the work was commenced by, and is still being furthered by, men whose names I do not see among the office-bearers of your society, and whose names I do find upon the roll of the Odontological Society, and I prefer to leave the work in their tried and trusted hands, working upon a liberal basis, rather than confide it to a body, the list of office-bearers of which includes the names of some at least who have stood apart and have not at all times ungrudgingly gone with their comrades in this matter.

3. "The furtherance of modes of practice compatible only with the highest professional status."

To what in particular this alludes I fail to see ; "modes of practice" which are worth anything are very likely to take care of themselves, and to stand upon their own merits, rather than upon the dicta of an association.

In its declaration of its objects, your association has, to my mind, failed to establish its *raison d'être*, and I should decline to join it on the ground that I hope to employ my time, if not more usefully, at all events, more to my taste.

Farther than this, there appear to me to be other grave objections to joining the association.

Whatever any one may say to the contrary, the L.D.S. diploma is the only one which indicates that the holder has received an education and an examination in the matters appertaining to our specialty. And, desirable as may be the extra year of hospital study which the M.R.C.S. implies, how much of general surgery do we keep up, and how far are we to be fairly entitled "competent surgeons," after ten years have elapsed from our having acquired the diploma ?

An association which fixes its qualification for membership in a degree other than the L.D.S., and purposed to be going "to further modes of practice compatible only with the highest professional status," &c., is in its very existence a slight to the L.D.S., and I observe that, although this degree is held by at all events some of your office-bearers, these letters are not appended to one single name.

Before I could join your Association, putting all other questions aside, my own self-respect would require me to resign the chair and its emoluments which I hold at the Dental Hospital, because that is a school directly concerned in the training of students for the L.D.S., and not for the M.R.C.S. And were I to displace the L.D.S. into a secondary position as a qualification for the Dentist, then, and not till then, I conceive that it would be consistent for me to endeavour to displace the Dental Hospital by the establishment of complete Dental schools at every general hospital ; and this would be a natural outcome of joining your association.

So far, I have given only my grounds for personally declining to become an associate ; a broader question opens itself up, however, in the influence for evil which the step you have taken may have.

Just now there is an extensive movement in the body of the profession, which has for its purpose progress in some form or another. The formation of a society proclaiming for itself a sort of superiority, instead of waiting till other people acknowledge its merits, must produce ill-feeling, and has, indeed, already done so.

In the face of the opposition which its establishment provoked ; in the face of the remonstrances of many whose judgment and motives are above suspicion ; in the face of the danger of a split, such as the Dental profession once had to struggle through, the promoters of the association might have gained in dignity by unselfishly withdrawing their scheme. Prejudiced I may be, but I for one cannot see that the results of the association, if there be any results, will be worthy ones. Its objects, if gained, surely are selfish objects, and would benefit, not the Dental profession at large, but those alone who presumably stand least in need of being benefited.—I am, yours faithfully,

CHARLES S. TOWES, M.A., M.R.C.S., L.D.S.,
Lecturer on Dental Anatomy and Physiology at the
Dental Hospital of London.

To S. Hamilton Cartwright, Esq.

Mr. George Ward.

TO THE EDITOR OF THE "MONTHLY REVIEW OF DENTAL SURGERY."

SIR,—I do not know that I should have returned to the subject of the inquiry of "L.D.S." in last month's "MONTHLY REVIEW," but for certain reasons. One is, is it usual for editors to privately show the letters of correspondents before the letter appears in print ? Next, my annoyance, if any, was because I was attacked by one signing under initials. Even now I know not my enemy, though he has expressed regret ; that is something. Now, sir, I have been many years in practice as a "Surgeon Dentist," which alone has ever appeared on my cards and circulars, and as I do not *entirely* and *contemptuously* repudiate the good opinion of my professional brethren, I would have frankly explained what gave rise to the inquiry of "L.D.S." relative to the mistake he has made. But as I do not choose to explain to initials, I refrain. The characteristics of a man show themselves in everything that he does, so kindly oblige me by inserting this letter to show "L.D.S." that the first step towards being a gentleman consists in not being ashamed of his own name.—I remain, Mr. Editor, yours respectfully,

188 Oxford-street, March 17th, 1876.

GEORGE WARD.

New Inventions.

WALKER'S SELF-REGULATING VULCANIZERS.

We have much pleasure in directing the attention of the profession to this now well-known vulcanizer.

The principle on which this invention is based is, that any given temperature of steam has a corresponding pressure, and as a pressure of 100 lbs. per square inch represents the best temperature for the

process of vulcanizing, it is only necessary to keep the pressure at that point to ensure success.

One defect in the ordinary vulcanizers arises from the fact that with a thermometer resting in a recess containing mercury, fluctuations in the internal temperature of the boiler are not instantaneously shown, owing to the heat having to pass from the inside of the boiler, through the iron to the mercury, and from the mercury to the thermometer, the result being that the temperature may rise or fall considerably, without the thermometer giving any indication, thereby causing the vulcanite piece to be porous and otherwise faulty.

In order to test this point, Messrs. Walker and Son tried a series of experiments with a boiler in which the recess for the thermometer was at the top of the lid.

The first result was that the thermometer registered 40 degrees less than the true internal temperature, although the heat was kept at the same point for some time. After this it was not surprising to find that it was possible to lower the temperature 50 degrees, and raise it again to the high point without the thermometer registering more than five degrees of variation.

In Walker's vulcanizer this fault is guarded against in two ways, firstly, the pressure of steam acting directly on the flow of gas, any variation in the internal temperature is checked instantaneously, by an alteration in the flame of the burner; and secondly, the pressure gauge will register with much more sensitiveness than a thermometer.

A vulcanizer thus fitted is clearly more reliable than one with the ordinary thermometer, and we think it will be well for the profession to endeavour to ascertain how far failures in vulcanite plates are due to defective structure in the boilers.

Obituary.

MR. CAMPBELL DE MORGAN, F.R.S., F.R.C.S.

It is with deep sorrow that we have to record the death of Mr. Campbell De Morgan, who, after a short illness, sank from pneumonia on Tuesday. Differing entirely from ordinary practitioners, there are few men whom the profession could have better spared. In his student days he showed great capacity, although he seldom exerted it, and such was his disposition in after years. Many thought him potentially equal to his brother, but he did not possess the same energy or industry, and therefore never attained the same distinguished position. He was the author of some excellent papers on cancer and tumours, the study of which subjects was facilitated by his connection with the special department of the Middlesex Hospital. He was elected a Fellow of the Royal Society, and made some interesting contributions to its transactions. As a surgeon he was thoughtful and painstaking, and an expert operator. He was also a ready and logical speaker, and his lectures were remarkable for their philosophical simplicity. Naturally of a contemplative disposition, and of artistic tastes, he cared not to enter the lists in search of fame or gain. His reputation, if limited, will always stand very high with those who knew him well; and, as the type of a chivalrous gentleman, his memory ought to be embalmed in this competitive age, when not unfrequently practitioners appear in the character of struggling tradesmen.

THE DENTAL SURGEONS ATTACHED^{ED} TO THE
VARIOUS HOSPITALS OF LONDON ATTEND AS
FOLLOWS:—

Dental Hospital of London	-	-	Daily, 9 a.m.
National Dental Hospital	-	-	Daily, 9 a.m.
Charing Cross	-	-	Mon., Wed., Fri., 9 a.m.
*German	-	-	Thur., 10 a.m.
*Great Northern	-	-	Wed., 2 p.m.
Guy's	-	-	Thur., 12 noon.
King's College	-	-	Tues., Fri., 10 a.m.
London	-	-	Tues., 9 a.m.
Middlesex	-	-	Daily, 9 a.m.
St. Bartholomew's	-	-	Friday, 9 a.m.
St. George's	-	-	Tues., Sat., 9 a.m.
St. Mary's	-	-	Wed., Sat., 9 a.m.
St. Thomas's	-	-	Tues., Fri., 10 a.m.
University College	-	-	Wed., 10.30 a.m.
*West London	-	-	Tues., Fri., 9.30 a.m.
Westminster	-	-	Wed., Sat., 9.15 a.m.

Hospitals marked * have no school attached to them.

DENTAL HOSPITAL OF LONDON.

CASES TREATED FROM FEBRUARY 1ST TO FEBRUARY 29TH, 1876.

Extractions.	Children under 14	-	-	-	310
	Adults	-	-	-	502
	Under Nitrous Oxide	-	-	-	228
	Gold Stoppings	-	-	-	218
	White Foil ditto	-	-	-	14
	Plastic ditto	-	-	-	273
	Irregularities of the Teeth treated surgically and mechanically	-	-	-	39
	Miscellaneous Cases	-	-	-	201
	Advice Cases	-	-	-	119
			Total	-	1904

JAMES MEESON, *Dental House Surgeon.*

The following Publications have been Received:—The Dental Register.—Johnston's Dental Miscellany.—Le Progrès Dentaire.—Le Progrès Médical.—The Dental Cosmos.—The Pennsylvania Journal of Dental Science.—The Missouri Dental Journal.—Deutsche Viertel-jahrsschrift.—Correspondenz Blatt.—Boston Journal of Chemistry.—The Dental Advertiser.—The London Medical Record.

TO CORRESPONDENTS.

ALL communications intended for the Editor should be addressed to the care of Messrs. SMITH, ELDER, & Co., 15 Waterloo Place, Pall Mall. All inquiries respecting Advertisements and Subscriptions should be sent to Mr. GEORGE BUTCHER, 4 Crane Court, Fleet Street, E.C.

THE MONTHLY REVIEW
OR
DENTAL SURGERY.

No. XII.

MAY, 1876.

VOL. IV.

Divided Councils.

The present number of the *MONTHLY REVIEW OF DENTAL SURGERY* will complete the Fourth Volume, and during the last year of the Review's existence there has been no lack of material for discussion ; since the days when Dentists first thought it well that they should combine together for mutual benefit and scientific advancement, we have had no period during which political feeling has run so high and party spirit has become so strong. On many accounts this is to be deplored ; the Dental Profession cannot at the present time afford to be divided in its Councils, and yet this is a result that will inevitably ensue if those who have assumed to themselves the task of *elevating* the profession persist in their endeavour to isolate themselves from the Dental Licentiates. The members of the Association of Surgeons practising Dentistry have a perfect right to form themselves into a Society if they so please ; they are clearly at liberty to draw up whatever rules they may choose for the government of their own body ; and so far as they can, they may manifestly introduce amongst themselves such reforms as they consider desirable. The case is totally different, however, when they propose to supply a code of

ethics for those whom they will not recognise as eligible for membership in their new Society.

If the number of Surgeons practising dentistry had been equal to the number of Dental Licentiates, we should be able to see some show of reason in their attempting to take to themselves the ethical guidance of the profession. Representing, however, as they do only about one-seventh of the properly qualified Practitioners of Dental Surgery, we are at a loss to understand how they can justify their position of self-endowed superiority.

Apart from the question of a greater or less degree of educational capability, we have the startling fact that they practically ignore the only dental qualification to be obtained in this country, and further endeavour to depreciate the value of the Dental Licence by the supposition that they alone can provide their *confrères* with that unwritten law of moral rectitude which may fairly be taken as the guiding principle of all truly professional men.

That the Dental Profession needs reform in many respects no one will for a moment deny, but it must be brought about by the joint action of every section of our community, and not by the egotism of a select few. In their zeal to provide a code of ethics, the Association of Surgeons practising Dentistry have done worse than commit a great indiscretion—they have done their best—though, we trust, unwittingly—to hinder the progress of Dental reform.

So long as the members of the new Society confine their labours to the discussion of matters of scientific interest, no one will have any just cause of complaint against them; but when, however, they ignore their professional colleagues, for whom at the same time they would fain legislate, they must not feel surprised to find themselves the subjects of harsh criticism and undisguised mistrust,

The Month.

DRAETHS DURING THE PAST MONTH.

We regret to announce the death of Mr. G. F. Fox, of Gloucester, at the early age of fifty-four; and of Mr. Thomas Hankins, of Queen Anne-street, in his forty-second year. Mr. Hankins' death was painfully sudden, and arose from the giving way of a small aneurismal tumour.

DENTAL REFORM.

Mr. Wormald, of Stockport, summoned a meeting at Manchester, on May 6th, when the following resolution was to be brought forward:—

RESOLVED:—"That with a view to unite the profession and facilitate the attainment of Parliamentary protection, upon the basis suggested at the Manchester Meeting, in August last,—

"This Meeting respectfully recommends the Executive Committee to embody in their Scheme of Dental Reform a re-opening of the L.D.S. examination to all existing practitioners, without curriculum, and with a form of examination modified according to the number of years candidates may have been in practice."

We have not received any report of the Meeting.

DENTAL ANESTHETICS AND HEART DISEASE.

We commend to the notice of our readers a correspondence on the above subject that we reprint from the *Lancet* at another part of the REVIEW.

THE ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

The next Monthly Meeting of the Society will take place on Monday, June 12th, instead of the 5th of the month.

DENS SAP.

In a sale catalogue of autographs there is one from Mrs. Piozzi, perhaps better known as Dr. Johnson's "Mrs. Thrale," in which she advises the Rev. Mr. Davies, concerning Salusbury, her nephew. "Meanwhile, let Parkinson look to his mouth directly, for it is so constructed he shows his teeth every time he speaks, and there are those who regard them more than the words, you know, which will at any rate come with a better grace from between two clean rows of fencibles in fair uniform, than from an ill-formed and masked battery of black fascines. Take care of his mouth, therefore, and let nothing odious either go in or come out."

DENTISTS.—"There are dentists and dentists." Outside the legal and duly-qualified body of dentists there is a body of irregular practitioners, who, both in London and the pro-

vinces, drive a lucrative trade. The "qualified" dentists are "Licentiates in dental surgery of the Royal College of Surgeons," having passed an examining board, consisting of six Fellows of the College who are surgeons, and six who are dental surgeons. The 'Medical Directory' contains the list of all dental surgeons thus qualified. Among the unqualified practitioners there are, of course, men of very various characters. When we say unqualified, we refer merely to the recently introduced legal qualification. There are still some educated and respectable dentists who practise, as they always have done, without diploma; just as there are clever schoolmasters without University training, or without connection with the College of Preceptors. It is their own fault if young dentists, by omitting to get a diploma, are classed with the quacks. The following incident known to us may serve as a warning against some of those who prey upon the public:—General ——, an old Indian, and a wealthy man, has a stick with a gold top, which he often shows, with the question, "What do you think that bit of gold cost?" After silence, or a wide guess: "Why, sir, it cost me a hundred guineas!" And then he tells how, on seeing an advertisement in the *Times*, he was attracted by its liberal promises, and pleased with its frankness of offering "advice gratis," and so on. His case, he was told, was one of extreme difficulty, but might, with great skill and care, be managed. Ignorant of the ways of these gentry, the General submitted himself meekly to the operator, who managed him as rich patients are usually managed. A duplicate set was prepared, which the General was told was the usual practice, when not otherwise specified. The General began to think there was "sharp practice," when the dentist stated that credit was never given, but that payment must be made before the teeth were taken away. On writing the cheque for 100*l.*, the watchful trader said his charge was a hundred *guineas*, and the General had to pay that sum. After some trial, the teeth were found utterly unserviceable, causing intense misery; but rather than have anything more to do with the advertising dentist, the General went to a qualified practitioner. Being properly fitted by him, the gold of the old sets was melted to make the top of the stick, which he displays good-humouredly as a monument of his own folly, as well as a warning to others.—*Leisure Hour*.

On the Microscopical Structure of Fossil Teeth from the Northumberland True Coal Measures.

By W. J. BARKAS, M.R.C.S.E., L.R.C.P. Lond.

CHAPTER XXI.

(Continued from page 484.)

Genus.—*Strepsodus* (Huxley).

The bone tissue of the jaw is composed of homogeneous tissue freely permeated by large vascular canals which branch and anastomose in all directions, causing the structure to appear very porous when examined in a vertical section; this is more especially the case with the alveolar osseous tissue; in the lower part of the jaw the tissue preponderates over the canals, and therefore appears denser. Surrounding most of the canals are concentric rings of dense structureless-looking tissue, and in or between those laminae are arranged numerous lacunæ, which give off a great number of rather large canaliculi, these radiating tubes ramify in the homogeneous lamellæ, and anastomose there with the canaliculi of contiguous lacunæ. The bone-cells are so placed that their long axis lies parallel to that of the Haversian system of which they are a part. The lacunæ measure, on an average about one-five hundredth of an inch in length, and one-two thousandth of an inch in breadth. The bone tissue passes into the grooves of the convoluted base of the tooth.

The dentine of the tooth (fig. lxxxvii.), is freely pierced by tubules, the largest of which measure about one-ten thousandth of an inch at their origin; they arise from the pulp-cavity at right angles in the base, and proceed in the same direction to the periphery, but as they arise nearer and nearer to the apex, they approach more and more to the perpendicular; the basal calcigerous tubules do not present any distinct primary curves, but they, like all the tubes, are minutely waved; the tubes in the body have a distinct primary curve, which is convex pointwards, during the first half of their course, afterwards they run at right angles to the periphery. The tubules branch very abundantly and in a dichotomous manner, they are given off at a very acute angle, and do not apparently anastomose with neighbouring ramuli, but proceed on to the external surface where they interlace somewhat with each other; the peri-

peripheral branches are exceedingly fine and numerous. The intervals between the tubules are about equal to the diameters of one, sometimes two, tubes. In vertical and transverse sections contour lines are very beautifully shown, they are caused by the abrupt curvature of the tubes on one plane, there not being any of the granular cells that we observed in the contour lines of a tooth of *Megalichthys*.

A transverse section of the base (fig. lxxxvii.), shows the convoluted dentine, and I have thought it well to give this illustration as it exhibits the convolutions so perfectly, and also the osseous tissue running into the external grooves. The dentine of this part presents all the characters of the bases of *Megalichthys*' teeth, dividing into roots in the same manner. The roots penetrate very deeply into the bone, preserving their dentinal features almost to the end, but finally they blend rapidly with the osseous tissue. I had intended to give a drawing of the insertion of the roots of these teeth in the bone, but I find that the accompanying plate will be sufficiently filled without it, I shall portray the roots of *Archichthys* instead.

The enamel is a comparatively thick layer covering the whole of the exerted part of the tooth, but it differs in thickness in different specimens. I have sections in which this coat varies from one two-hundred-and-fiftieth of an inch to two-thousandths of an inch. It is permeated by the terminal dentinal tubules, but they do not affect the clearness and transparency of the tissue. The fine striations that we observed on the external surface of the tooth only belong to the enamel, the dentine not being ridged in the slightest degree.

Genus. *Orthognathus*. (Barkas).

Our knowledge of this genus is exceedingly slight; in fact only five fragmentary pieces of dentary bones have been obtained, but there can be no doubt that these jaws belong to a genus that was unknown to science until described by Mr. T. P. Barkas. As no other palæontologist has written anything concerning these dentary bones, I shall quote the description given by the founder himself in the "Scientific Opinion" for 1870. In that account only the external characters are detailed, no microscopical examination having been made on account of the extreme rarity of the specimens; Mr. Barkas, however, has kindly allowed me to make

a section of a portion of one of the jaws for the purposes of this paper, so that I am enabled to give a detailed description of its histological characters.

"The jaw* is lying upon a slab of shale, which measures five inches by four inches, and the jaw before deposition has been broken into two almost equal parts; the two fragments lie near each other upon precisely the same plane. (I have exhibited this maxilla in fig. xc., but I have united the two fragments). The teeth, forms of the fragments, and external markings closely resemble each other, and the two fragments constitute the greater part of the right maxilla of a fish or reptile. The length of the two fragments when united is four inches, the depth of the maxilla near the point of symphysis is three-eighths of an inch; it gradually widens (q.v. narrows) towards the articular extremity, near which it is seven-eighths of an inch deep; the thickness of the maxilla at one quarter of an inch above the alveolar margin is five-sixteenths of an inch, and its thickness at the upper margin is one-eighth of an inch. The teeth are arranged in a continuous series of uniform size along the alveolar border, a strong bold ridge is continued along the entire jaw, and the teeth are placed one-eighth of an inch behind the projecting ridge. The external surface of the maxilla is covered with minute, well-defined rugose markings, having the appearance of inoculating ridges, and, besides the pits and depressions formed by the frequent union of the ridges, the jaw is covered with more minute pittings that require the use of a highly magnifying lens to render them distinctly visible. The teeth are one-twelfth of an inch long; they are stout, compact, and strong, and are placed along the entire jaw at an uniform distance from each other of one-twelfth of an inch. Within the space of one inch there are ten teeth, and the maxilla, which is four inches long, contains forty teeth of uniform size, placed at uniform distances from each other. The teeth, which are smooth, black, and glistening, are free from longitudinal striae, except at the roots, where there are slight indications of a plicated structure. The inner part of the jaw, which at one part is well exposed, is on its lower and upper portions marked with bold longitudinal lines. The articular (posterior) extremity

* The author in this description called the jaw a mandible, but the discovery of other jaws showed him that it was a portion of a maxilla, and he corrected the mistake in a future letter. I have given the quotation in its corrected state.

of the jaw is absent, and I infer from the general appearance of that portion in my possession that one inch of the maxilla is lost." From this description it will be noticed that Mr. Barkas is somewhat in doubt as to the nature of the animal that possessed this dentary bone, whether it was piscine or reptilian, but he is inclined to consider it to belong to the fish tribe. When we compare this jaw with those of *Megalichthys* and *Rhizodopsis*, I think we need hardly hesitate to consider it as pertaining to a fish belonging either to the *Saurodipteronini* or the *Glyptodipteronini*, but more probably to the latter, because the bone is sculptured, and not enamelled. As we shall see directly the minute structure is also closely allied to that of the two genera I have mentioned above, an alliance that gives a greater air of probability to this classification. A later discovery of fragments of a mandible and maxilla by Mr. Simm, of West Cramlington, and of the greater portion of a mandible by Mr. Barkas, completely sets the matter at rest.

The mandible (fig. lxxxix.) is a long narrow bone, and closely resembles the form of a mandible of *Strepsodus*. The external surface is ornamented like that aspect of the jaw already described, and its anterior extremity is crossed by a deep depression; this end of the jaw is much the thickest and deepest. The internal surface is smooth, and there runs along its whole length a strong bar of bony tissue, which is most pronounced anteriorly; this ridge is situated a short distance below the edge of the alveolar margin, and from its superior surface rises the laniary tooth; in this feature the bone resembles a mandible of *Megalichthys*. The serial teeth spring from bone above the internal longitudinal bar and a little below the edge of the alveola. The laniary tooth is situated at the symphysial extremity; it is much fluted at its base, but in other respects it resembles the serial teeth. Only one laniary tooth is visible in this specimen, but it is probable that there are others that have either been broken away or are hidden in the shale, just as the laniary teeth of *Megalichthys* and *Rhizodopsis* are very frequently buried or wanting. The tooth in fig. lxxxix. is broken, so I have only sketched the outline of the part remaining.

In naming these fragments of jaws, maxilla and mandible, I have followed the terms employed by Mr. Barkas, but after a close examination of all the specimens extant, I am

of opinion that the so-called maxilla, fig. xc., is the posterior end of a mandible, but not of the mandible shown in fig. lxxxix., for when complete the former would be a much larger jaw. In this conclusion Mr. Barkas is inclined to coincide with me. Certainly there are not any fossil fish maxillæ that I am acquainted with that possess an anterior extremity similar to fig. xc., while such is the frequent form of the posterior ends of mandibles.

I have been enabled to examine under the microscope only a vertical section of a portion of a mandible; fortunately the section is a good one, and shows the characters of the bone and teeth. In the inferior portion of the jaw the tissue predominates over the Haversian canals, but they are about equal in the upper or alveolar part. The inferior canals are very large and appear to run transversely through the bone, and it may be that they open on the external surface, and cause the minute pitted appearance there observed; all the canals branch freely enough and form numerous anastomoses; this is more especially the case in the tissue of the alveola. The osseous matrix surrounding the canals shows a tendency to lamination, but it is not distinct around all. Lacunæ are present in large numbers, and arranged around the canals, but not in regular rings; their long diameter, however, is always parallel with the Haversian canal, with which they are contiguous; they vary much in size according to the portion of the jaw examined, the largest being found inferiorly. They measure from one-five-hundredth of an inch long and one-four-thousandth of an inch broad, to one-one-thousandth of an inch long and one-two-thousand-five-hundredth broad; these bone-cells, therefore, are truly piscine, the inferior cells being generally eight times longer than they are broad.

The serial teeth are inserted in sockets, formed by depressions in the alveolar margin, these sockets are further deepened by the addition of a ridge of bone to the mouth of the cavity which embraces the tooth just above the base where it has begun to contract towards the apex. The portion of the tooth that enters into the socket exhibits a tendency to divide into roots, but the inclination does not proceed further than the unfolding of the dentine, division not taking place. The base of the tooth does not blend with the bone, but is separated from it by a thin layer of what Professor Owen designates osteo-dentine in his des-

cription of Coal Measure teeth; whether this tissue is or is not correctly so-called, I do not intend to dispute, but it must be understood that it is quite distinct histologically from vascular dentine.

The laniary tooth is ankylosed to the jaw in the same manner as the laniary teeth of other Saurodipterines and Glyptodipterines; the transverse fracture of the base of the tooth in fig. lxxxix. shows a distinctly convoluted outline.

The dentine is permeated by numerous tubules which measure from one-ten thousandth of an inch to one-fifteen thousandth of an inch in diameter at their origin; they have a general tendency to incline upwards towards the apex, and in their course they display two or more very slight primary curves, the first being concave pointwards, they are besides rendered wavy by numerous secondary bends, in the base the first primary curve is the most pronounced, but the tubules that arise nearer the apex at the second or convex bend are the most apparent. The tubes divide dichotomously, the branches being given off at a very acute angle, they then run parallel to the main tube, and do not appear to anastomose; nor do they suddenly become finer near the periphery so as to form a layer of dense tissue beneath the enamel, but the tubules undergo the change gradually. I have not observed any contour lines in these teeth.

The enamel is a clear structureless looking tissue, it is about one-two thousandth of an inch in thickness, and covers the whole of the exserted part of the tooth.

Defective and Decayed Teeth a Cause of Imperfect Mastication, producing much Needless and Unsuspected Suffering.

By ARTHUR W. EDIS, M.D.,

Assistant Obstetric Physician to the Middlesex Hospital, &c.

My attention of late has been prominently directed to a class of cases, the main features of which are indigestion, flatulence, sudden attacks of diarrhoea, oppression after eating, and other well-marked symptoms, due entirely to imperfect mastication from defective and decayed teeth. With the hope of impressing more forcibly upon the members of the profession the importance of this frequent and yet unsuspected cause of deranged health, I venture to give a brief outline of a few of the most frequent and distressing symptoms.

My experience has been nearly entirely confined to the female sex. I have met with a considerable number of patients both in hospital and

private practice who, though apparently blessed with good constitutions, seldom know what it is to enjoy perfect health. Although surrounded by circumstances calculated to produce health of body as well as mind, they are frequently the subject of hypochondriasis, neuralgia, dyspepsia, diarrhoea, flatulence, headache, colic, palpitation, lassitude and oppression after eating; amenorrhœa, dysmenorrhœa, leucorrhœa, and other symptoms often ensuing in consequence. Relief for these is sought at the hands of the profession, and in too many instances efforts are made to counteract the effects without attempting to obviate the cause. Bismuth and soda, ipecacuanha and capsicum, hydrocyanic and nitric acids, strychnia, quinine, chalybeates in all their various forms and combinations, are tried in vain, and the patients drift about from one practitioner to the other, deriving but temporary benefit from anything and doing credit to no one.

In many of these instances the medical attendant is fairly taken off his guard. He requests permission to see the tongue, and notes perhaps the perfect and regular phalanx of incisors through which it is protruded; but unless special attention be called to the state of the molars he seldom observes the decayed and defective condition of these, and proceeds in his investigation of other organs, getting further and further from the cause of all the suffering.

I have met with many cases of palpitation, where digitalis had been prescribed in vain, and even proved injurious, which were relieved within a few weeks after the insertion of a set of molars. Equally efficacious has been the science of mechanics when the science of therapeutics in its more restricted signification of the *materia medica* has signally failed, in cases of chlorosis, accompanied by scanty and painful menstruation, where iron and aloes had been given *usque ad nauseam*. Dysmenorrhœa of a very aggravated form is in many cases due not to flexion or displacement of the uterus, nor even to constriction of the cervical canal or ovarian congestion, but chiefly if not entirely to defective innervation dependent upon deficient assimilation. Chalybeates and tonics in these patients are of comparatively little value, until the defect in the teeth has been remedied and proper mastication ensured.

During pregnancy the usual reflex irritability of the stomach is in many cases considerably aggravated by deficient mastication; and I feel certain that mechanical dentistry would accomplish more than oxalate of cerium, oxide of gold, or any similar preparations in many of these cases.

There are a certain class of patients frequently met with who consult us for imagined uterine disorders, the true source of their suffering being abdominal derangements due to defective mastication. The proof of this consists in the fact that the symptoms abate on the defect being remedied; whereas, previously, remedies directed specially to the alleviation of uterine disorder had been tried in vain.

In some instances of emaciation, attended by pallor of the countenance and a hacking cough, due to congestion of the stomach from food being constantly presented to it in an imperfectly masticated condition, the presence of phthisis has been seriously suspected, and much anxiety on the part of friends has been caused by what they believed to be manifest symptoms of commencing decline. Several instances of this have occurred to me, similar to the one given below.

Our ignorance of the pathology and early beginnings of cancer forbids me to speak with any precision upon the question of how far the constant and continuous irritation to the bowel from food passing down in an undigested—because unmasticated—condition, may serve to determine the condition eventuating in cancer, where the hereditary tendency is well marked; but my conviction is that I have met with several cases of cancer of the bowel due to the irritation thus caused. One very marked case apparently of this nature recently occurred in a single lady, *æt.* 38, who for many years had been subject to irregular attacks of spasm, colic, diarrhoea, dyspepsia, and the other symptoms usually observed, and in whom I detected a complete absence of any masticating surface properly so-called. I could multiply instances indefinitely did time and space permit, but my object will be attained if I succeed in directing more prominent attention to what I believe to be a very frequent source of much unsuspected and unnecessary suffering. I will, therefore, content myself with the narration of a few illustrative cases.

M. G., *æt.* 26, single, was first seen Jan. 7th, 1874. She complained of dyspepsia, constipation, alternating with frequent attacks of diarrhoea, spasm, colic, severe pain in the epigastric and right hypochondriac regions, flatulence, palpitation, and other like symptoms, together with frequent attacks of neuralgia. The patient was a well-made, tall, interesting-looking young lady; but her good looks were sadly marred by her pinched expression of features, sallow, muddy complexion, attenuated frame, and general aspect of malaise. She had consulted numerous medical men, and tried very various remedies—ipecacuanha, bismuth, opium, *et id genus omne.* Her friends, thinking she was going into a decline, had sent her away for months at a time to Holland, France, and Germany; but her condition remained unaltered. She had also frequent attacks of bleeding piles. A careful examination of the various organs was instituted. The tongue was furred; the breath very offensive. The front teeth were sound and healthy. On requesting the patient to open her mouth in order to examine the condition of the others, it was found that the molars were in a sadly deficient state. The upper ones were mostly carious; many of them being decayed down to the margin of the gums, two only being in a state at all approaching to soundness; and these were opposed in the lower jaw by a mass of decayed stumps, which offered no surface for mastication. The bicuspids were also much decayed and broken down. The probable cause of her suffering was explained to the patient, and she was exhorted to procure an artificial set of teeth in order to secure proper mastication of her food. The catamenia were scanty but regular in their periodicity. Nothing abnormal as regarded the abdomen could be detected; though there was manifest tenderness over the epigastrium. A mixture of bark and acid was prescribed, and a suitable diet suggested until the alteration could be effected. A few weeks after this she had several of the most decayed stumps removed, and in due course a set of artificial teeth adjusted. Six months from this date I with difficulty recognised my former patient, when she entered my consulting room. Her general looks had not only markedly improved, the countenance being cheerful and animated, the complexion clear and healthy, but she had gained much in health and strength. "She never felt so well in her life, nothing ails her now, can eat and drink anything,

and feels quite a different being." There had been no return lately of her former attacks. The neuralgia had quite disappeared, as also the bleeding from the bowel ; and in short she was perfectly convalescent. In August, 1875, I saw her, though not professionally. She had given up taking pills and mixtures, and had entered into the matrimonial estate, and was in every respect as healthy as possible.

This is doubtless a typical case, and as such I give it ; but there are numbers of patients who, if they do not suffer to such a marked degree as in this instance, are yet constantly distressed with headache, dyspepsia, costiveness, alternating with attacks of diarrhoea, " spasms," colic, languor, nervousness, and other well-marked symptoms, due almost entirely to defective mastication from loss or decay of the molar teeth, the mischief being unsuspected.

Another well-marked instance recently presented itself in the form of a young fragile, delicate-looking creature, who was supposed to be suffering from consumption, and was on the eve of being exiled with a view to giving her a chance of prolonging her life. A sudden attack of severe colic and diarrhoea, to which on inquiry I found she was frequently subject, necessitated her being seen professionally. Her usual medical attendant being away, I was requested to see her. I was much struck with the pale, anæmic-looking countenance ; the anxious, almost discontented expression ; the emaciated condition of the body generally ; and the great similarity in the symptoms to those detailed in the former instance.

On examining her mouth, the same furred condition of the tongue, fetor of the breath, and general state of decay of the molar teeth, convinced me that imperfect mastication played an important rôle in the production of her state of health. The front teeth in this instance also were perfectly sound and exceptionally clean and regular, so much so that the lady who accompanied her, on my remarking on the condition of the molars, replied that she had hitherto believed the young lady in question possessed an unusually good set of teeth ; but was convinced to the contrary on my requesting her to inspect the actual state of affairs. On making a careful examination of the chest, I failed to detect any symptoms of tubercular infiltration in the lungs, there being merely some moist mucous râles dependent upon a slight amount of bronchitis accompanying an ordinary attack of catarrh, to which the depressed condition of her vitality rendered her frequently liable.

Having improved her general condition somewhat, she summoned up sufficient courage to have the whole of the decayed stumps removed. A set of artificial teeth was subsequently inserted, and within three months from this time her personal appearance as well as general state of health had improved wonderfully. The frequent attacks of spasm and diarrhoea quite disappeared ; the appetite increased ; the cough diminished ; and the patient literally became a new being.

Another case typical also of many such may be briefly mentioned.

N. D., æt. 25, a comely, healthy-looking young lady, presented herself complaining of scanty and irregular menstruation ; the intervals between the periods often occupied from six to ten weeks, and there was much discomfort at the times. On inquiry, I found that her appetite was good, but that immediately after meals she was frequently obliged to retire to her room in order to unfasten her dress on account of the uncomfortable distension that ensued. She also often had to lie

down for a time as she was oppressed with an overpowering sense of drowsiness after eating, and her face became so flushed that she was quite ashamed of it. The bowels were generally very constipated, seldom acting more than once a week, and often only once a fortnight; except at times, when a sudden attack of diarrhoea would supervene, attended by much abdominal pain, for which brandy was habitually taken. The pulse was slow and feeble, and she was frequently subject to most distressing palpitation.

Examination of the mouth confirmed my suspicion that defective mastication was the principal cause of these symptoms. There was positively no masticating surface, the under portion of the jaws being chiefly occupied by decayed stumps—a veritable charnel-house. These were removed on three separate occasions, and an artificial set of teeth adjusted. Six months from this date the improvement in the general health was most marked. The pulse was stronger, the palpitation had almost entirely disappeared, the bowels acted regularly, the attack of diarrhoea had ceased, the flushing of the face and sense of oppression and drowsiness after meals no longer existed, and the general tone of the system had markedly improved. The catamenia became more regular and normal in character, and there was far less constitutional irritation and distress on the recurrence of the periods.—*Medical Examiner.*

A Clinical Lecture on Tertiary Syphilis of the Soft Palate and Pharynx.

Delivered at University College Hospital, Feb. 24th, 1876.

BY BERKELEY HILL,

PROFESSOR OF CLINICAL SURGERY IN UNIVERSITY COLLEGE, AND SURGEON TO THE HOSPITAL.

GENTLEMEN,—There have been recently in hospital some cases of late syphilis of the palate and pharynx which exemplify the various ways in which that disease manifests itself in that region; and as I have been fortunate enough to obtain for you to-day several examples of these affections, it will, I think, be profitable to consider the morbid conditions more systematically than is possible when watching the progress of single cases in the wards or out-patients room.

In passing, let me remind you of a peculiarity in the course of syphilis concerning the pharynx—namely, the rarity with which the pharynx proper is attacked in the early periods of syphilis. As you know, the anterior surface of the velum palati, the pillars, and the tonsils are constantly the seat of erosion, mucous patches, &c., while the eruptions are present on the skin. The larynx likewise is commonly affected in early syphilis. The pharynx nearly always

escapes. The reason of this is not obvious, for there is no natural incapacity in the part; mucous patches and erythema are occasionally seen on the posterior wall of the pharynx. In searching for cases of tertiary pharyngeal disease, I came upon one case where a mucous patch was recorded to have been developed in the posterior wall of the pharynx during the early eruptive period. This is, however, the only one I recollect to have seen. Besides mucous patches in adults, in inherited syphilis, when there is coryza of the Schneiderian membrane, the pharynx is frequently reddened. On the other hand, in the later periods of syphilis, when for the great majority of persons the disease is extinct, the pharynx is a chosen site for tertiary affections, and the ramifications into neighbouring structures are often widely spread.

With regard to the time after infection that tertiaries appear in the pharynx, reference to my notes shows that a shorter interval is customary than is generally laid down in text-books. It is often difficult to obtain precise data on which one may rely for calculating the age of syphilis. In a remarkable case of aphasia from syphilitic disease of the brain, whom many of you may recollect to have seen frequently during 1874-5, the patient's pharynx was attacked four years after infection. Besides seven patients who are here to-day for your inspection, I have also collected nine cases from my female case-book for 1868 at the Lock Hospital, in which the date of their infection and that of the beginning of their throat disease are clearly made out. Of the seven patients, in three the date of infection is probably long anterior to their throat disease; two are married women, and their syphilitic histories have for a chief symptom a long series of miscarriages and dead children; the third is a man, but though uncertain how long, he has probably been infected more than five years. In the remaining four, one was infected five years ago, and has had his throat fourteen months affected; in another a circumscribed gumma began two years after infection. The remaining two patients are young, eighteen and ten years of age respectively, and their syphilis dates from infancy, being probably inherited. They are quite unaware when their throats were first affected, though certainly it happened several years ago. In the nine cases from the note-book—in one the disease began three years after infection, in four between four and seven years, in two more than seven years,

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and in the remaining two more than ten years elapsed between infection and the outbreak of tertiary in the throat. From these data it would seem that four or five years is the commonest period for syphilitic persons to become liable to gummosus disease of the palate and pharynx, though it is not infrequent for their disease to begin sooner than that. Mark another point also in these cases. The early skin eruptions were ill-marked and transient, so fugitive in some that the patients had not noticed them at all. The man with a gap in the velum is quite unaware that he ever had a rash. All he recollects is a comparatively recent tertiary ulcer of the skin. I draw your attention to this character, because I believe it to be a frequent one in those who have tertiary syphilis of any kind, and probably has some influence in causing the tertiary proclivity.

There are two forms of gummosus disease of the palate and pharynx: the *circumscribed* and the *diffuse*, or infiltrating. Their anatomical seat is the mucous membrane, the submucous or muscular layers. These different localities of origin cause some diversity in the symptoms and effects; thus they have a practical interest. The circumscribed and infiltrating varieties may be present simultaneously, though often only one is developed. This child, whose gumma of the forehead was so conspicuous two weeks ago, is an example of the diffused form. Her palate is seamed in all directions with the scars of an infiltrating gumma of the mucous membrane, which, not having penetrated the muscular tissue, has not greatly interfered with the function of the part. This man, from ward No. 10, has a round hole in his palate, but now the edges are healed, the remainder of the palate being unaltered. He is an example of the circumscribed gumma. This woman, whose long history of miscarriages and dead children we extracted from her some days ago, has well-marked infiltrating gumma of the posterior wall of the pharynx and extensive implication of the bones of the nose and base of the skull.

The circumscribed gumma is the most common form, both in the velum and in the pharynx proper. It is usually single, though not invariably so. Owing to the insidious progress, it rarely attracts attention until it breaks by ulceration. If, however, a gumma is detected at an early stage, it presents a small, clearly circumscribed, solid mass, often almost globular in shape. In the velum, most frequent

at the mesial line, near the hard palate, rarely at the sides, though I have seen it in the anterior pillars, and even in the uvula. In the pharynx there appears no predilection for the mesial line; there they form indifferently on any part. Beginning most commonly in the submucous or muscular layer, the great majority speedily spread to the other structures, and grow sometimes to a considerable size before they soften and break through the surface. Seldom larger than a cherry, they are recorded to have grown as large as a hen's egg. In such cases they have seriously impeded deglutition and respiration by their mere bulk. Fournier* relates a case where a patient, having long had a "bad" throat, became at last quite unable to swallow, and breathed but with great difficulty. Nothing could be seen, but on searching the neck with the finger opposite the thyroid cartilage a swelling, apparently as large as a quarter of a lemon, could be detected. Presuming this to be syphilitic from the patient having had syphilis previously, he administered iodide of potash. In a few days the swelling was gone, and the patient could eat and breathe with perfect ease.

If untreated, sooner or later, generally in a few weeks, the tumour softens, and its liquid part escapes in the form of glairy viscid fluid, which is soon changed to viscid pus. Thus an ulcer is formed of circular or nearly circular shape, the surface irregular, hollowed; through its covering of adhesive pus project shreds of gummosous tissue not yet detached, and irregular granulations. The edges of the ulcer are characteristic; they are thickened, raised, and reddish, forming often a kind of frame to the sore. Thus a large gap in the velum or a pit in the pharynx is produced, which is commonly increased by further conversion of the natural tissue into gummosous tissue, and destruction by necrosis or phagedænic ulceration. But this is not invariable; instances are not rare in which the velum is perforated by a round hole, supple, and contracting or expanding readily by muscular action. If the gap in the velum is large, fluids, especially thin ones, escape into the posterior nares, and the voice assumes more or less of a nasal twang. But when the hole is small it often produces no perceptible effect on articulation, and the patient learns to compel the food to pass

* 'Doyon's "Annales de Dermatologie et de Syphilis." No. 6, 1873-4.
MM 2

completely into the gullet. Less inconvenience than even this results from a circumscribed gumma in the pharynx, which, when healed, leaves only a depressed scar. The serious deformities of the palate or pharynx are produced by the infiltrating form which I shall presently describe.

When the gumma is developed on the posterior surface of the velum, or summit of the pharynx, it is rarely detected in an early stage, or until ulceration is far advanced. The symptoms that lead to suspicion of it are usually present to some degree: they are, dryness and discomfort of the pharynx, a frequent desire to clear the throat of a viscid mucus, which is less readily accomplished than usual, pain in swallowing, a humming in the ears when the gumma is situated near the Eustachian tubes, obstinate coryza, and, after ulceration has begun, pus and streaks of blood in the discharge from the nose. These symptoms get worse rather than better with lapse of time. But it often happens that considerable injury is caused before the nature of the disease is discovered. There was an interesting example of this kind last year in Ward 3, under the care of Dr. Wilson Fox, with whom I saw the patient on several occasions. The patient, giving no history of previous syphilis, complained of great pain in swallowing, dryness of the throat, and general malaise. Nothing could be seen in the throat except pallor of the velum, nor could anything be detected by the finger. While we were uncertain of the nature of her ailment, luckily for our diagnosis an iritis appeared in the left eye, which gave a clue to the origin of the throat affection. That, with the iritis, speedily improved when mercury was given, though not before the gumma became evident in the palate, and, breaking, left a permanent gap. I need not remind you that in searching for these gummata you should use the rhinoscopic mirror, and you may gain in that way ocular demonstration of the cause of the symptoms. But you will meet with patients whose fauces are too irritable to allow the velum to be lifted while the mirror is introduced. When this is so, if you take a broad bent spatula or spoon to draw the velum well forward, and while the head is opposite a good light, the greater part of the back of the palate and pharynx can be seen before reflex movement is roused. The palate appears to bear forcible displacement with a broad blunt surface more patiently than the gentle tickling of a small hook or the pinch of a forceps.

The *diffused* or infiltrating form develops in two varieties—that which limits itself mainly to the mucous membrane, and the severer variety which penetrates the submucous and muscular layers. The first leaves wide-spread seams and branching scars, the site of former creeping ulcers; but, the deeper layers having escaped, the organ retains its mobility, and apparently has undergone no detriment of function. The penetrating variety converts all it reaches into a tough, brawny, resisting tissue, and its progress is difficult to arrest before the whole velum and pharynx have been essentially altered in structure. At the outset the velum and pillars are much thickened, partly by the new growth, partly by cedema, which greatly hamper the action of the muscles. Soon the infiltration reaches the posterior wall of the pharynx, which, rendered thick and rigid, projects forward towards the velum, and greatly diminishes the cavity of the pharynx. A considerable surface is invaded before ulceration begins, but sooner or later the surface breaks, often at several centres, and a group of indolent uneven sores are formed, healing here and spreading there, and covered with sticky muco-pus or diphtheritic exudation. The healing process is also peculiar. The rigid infiltration, so widely and deeply penetrating, is slowly transformed into a tough, highly contractile fibrous tissue, which replaces the normal tissue; its only covering being a brittle epithelium, that is readily chafed away into shallow indolent sores. The consequences of this slow conversion of the natural tissue into dense tough fibrous cicatrix are pain, deformity, and more or less loss of function to the organ.

Severe pain is seldom felt before ulceration with the isolated gumma; here, on the contrary, pain begins very early, varying in amount with the situation of the morbid process. When the parts are at rest there is little pain, but speaking more than a few words brings a sense of fatigue from the impediment or muscular contraction. The voice is thick and husky at first, becoming, when contraction is advanced, hissing or hoarse, like a drake's; and, owing to the difficulty of swallowing, the patient is continually hawking and spitting out a thick glue-like mucus. Swallowing inflicts most severe pain; solids after a time cannot be swallowed at all, and then liquids with great difficulty.

But these calamities are not the worst that may befall the

miserable patient. The infiltrating new growth may spread to the posterior nares, destroying the mucous and periosteal lining of the delicate bones, causing either necrosis of large pieces or destroying them by syphilitic osteitis. In this way, the bones of the nose, of the palate, of the sphenoid, of the basilar part of the occipital bone, the bodies of the upper cervical vertebrae, may be cleared away. Thus the brain or the spinal cord may be seriously and fatally affected. Sometimes the infiltration and consequent phagedæna reach a large blood-vessel and occasion sudden dangerous haemorrhage. There is another effect produced by the contracting scars: the remnant of the velum becomes adherent to the roof of the pharynx. Usually there is left a gap in the centre, large enough for the forefinger to enter, by which communication between the nose and the pharynx is still possible. But sometimes this aperture is very small, or even entirely closed, when of course air can reach the lungs through the mouth alone. At other times the greatest deformity is in the fauces; the isthmus is replaced by a gristly ring much narrower than the natural mobile yielding sphincter, and which draws up and holds the root of the tongue and epiglottis, or the remains of that structure, in an almost immovable position. It is difficult to exaggerate the constant suffering this entails.

A few words on the treatment of these cases. This resolves itself into curing the general cachexia, and allaying the local suffering. The iodides of potash, soda, or ammonia are the chief resources. In most cases you have merely to begin with moderate doses of iodide of potash, and gradually increase them by adding one-third to the dose every three days as long as the gummatæ are not absorbed, and the ulcers unhealed. As soon as they are healed the iodide may be lessened, and, after a few weeks, omitted for a time altogether. But, unfortunately, there are patients who cannot take iodide of potash in sufficient doses or even at all, without being iodised. Most of these patients, nevertheless, can be brought to bear iodine if it be given in a way suited to them. Sometimes the iodide of soda is borne when the potash salt causes intolerable depression, and both are more efficacious when they are taken with carbonate of ammonia. Sarsaparilla also will afford tolerance for large doses. The time at which the medicine is taken is of importance. The stomach can bear

a heavier dose when full of food than when fasting. Again a large dose can often be borne at bedtime if drunk with effervescent water. Perhaps the effervescent carbonic acid soothes the stomach until the iodide is absorbed. When neither iodide of potash nor iodide of soda is tolerated, there is still the iodide of ammonia, which, being wholly volatile, probably undergoes complete decomposition, and affects the blood less injuriously than do the large quantities of fixed alkali which are combined in the other iodides. But this salt is very unstable, decomposing in even watery solutions, and still more readily in vegetable infusions. Hence, when given an excess of sesqui-carbonate of ammonia must be added to the solution. With this precaution this iodide will sometimes succeed when the others have failed. As an antidote to syphilis it is, I believe, identical with them in its effect. The next drug in order is mercury. Indeed, though it is advisable to delay the administration of mercury until the iodides have driven away the gumma, healed the ulcers, and restored the patient's strength to some extent, mercury should always form a part of the course. When iodides cannot be borne, try mercury at once; and in these debilitated persons the least injurious way is by inunction. Every evening twenty grains of the strong mercury ointment should be rubbed into the skin. This may be done also while the iodide is continued. If given by the mouth, a suitable dose is three-quarters of a grain of the green iodide of mercury as a pill daily at breakfast-time; or one-sixteenth of a grain of cyanide or bichloride of mercury in a pill, with a sufficiency of sugar of milk, every four or six hours, is also an efficacious way of bringing the patient under the influence of the drug without distressing the stomach. Indeed I have found that mercury, like some other medicines, is more effectual in small frequent doses than in large doses at long intervals. The disadvantage of frequent doses lies in this: the patient is apt to forget some of his pills when he has several to take in the course of the day. He can manage one night and morning, but the intervening doses are often omitted. When the patient has been fitted with the form of antidote, whether of iodine or mercury, which he can absorb, his recovery may be assisted or his suffering relieved by opium, also in small frequent doses, and strength be given by iron, quinine, or cod-liver oil.

He will need suggestions for supplying himself with nourishing food that he can swallow; such must be chiefly strong soups thickened with arrowroot, milk similarly thickened, jellies with wine in them, and such easily swallowed solids. That well-puffed article of food, revolta arabica, prepared with milk, is an excellent kind of food for these patients. It is not a starch, but chiefly a very purely-prepared flour of lentils. Much alcohol is hurtful, by hindering the absorption of mercury or iodine. Then as to local remedies: caustics must be avoided, they cause pain when they reach the ulcers, and don't arrest the phagedæna; general treatment must be trusted for that. Assiduous sponging with soothing lotions are the most successful. Weak solution of borax with a little glycerine, steam with creosote vapour, or a solution of bichloride of mercury, with one-sixth of a grain of mercury to the ounce of water, when there is great soreness and consequent spasm, are most useful. Frequent washing with the nasal douche is of great service to clear away the mucus and discharge of the nares. The gaps that are left are not promising for plastic operation. The tough cicatrices of the infiltrating variety should never be stitched. Very tight bands may sometimes be cut across, but even then the resulting scar often shrinks almost as much as it had at first. Plastic operation may be attempted to close a gap in the palate left by the breaking down of a gumma when the neighbouring tissue has lost little of its natural suppleness. But it is in nearly all cases best to wait until the contraction which follows cicatrisation has finished, and to close the diminished orifice with an obturator, which dentists now fit with great skill and success.—*The Lancet*.

The Teeth in Literature,

By W. C. BARRETT, M.D.S.

From the earliest times attention has been paid to the teeth, not only as important organs in the human mechanism, but as affording indications extremely useful in the diagnosis, or prognosis of disease. Among physicians of to-day, an examination of the oral cavity is almost always preliminary to an opinion; but the inspection usually goes no further than the tongue, which indicates but the then exist-

ing condition of the patient; whereas the teeth often bear marks which, to an intelligent observer, reveal all the previous sanitary history.

Hippocrates, the Father of Medicine, in his 'Prognostics and Prophetic,' frequently alludes to the importance of a close attention to them, as indicating the progress of morbid tendencies. Indeed, he has many wise suggestions, that it would be well if the dental, as well as the medical profession of this age, would ponder and study over.

In his 'Aphorisms' (18), he says, "Cold is inimical to the bones, the teeth, the nerves, the brain, and the spinal marrow." This, Theophilus and Galen explain, as meaning that the parts of the body here mentioned, are of a cold nature; possessed of little vascularity, and hence readily injured by a low temperature. It is an acknowledged fact, that the frequent neuralgias, and rheumatisms of the parts enumerated, may often be referable to the thermal changes.

The Bible has frequent reference to the teeth, and their relative importance in the human economy. In the Mosaic law, which was a code of retaliation and reprisals, special provision was made for the punishment of those, through whose crime or fault, another might lose a tooth. In the twenty-first chapter of Exodus, the general common law is laid down: "An eye for an eye, and a tooth for a tooth." Afterwards, in legislating upon the relation of master and servant, the great lawgiver says concerning this matter: "If he smite out his man-servant's tooth, he shall let him (the servant) go free, for his tooth's sake." In those times, the opinion was not entertained, that the teeth were furnished men for the express purpose of being removed for the insertion of artificial ones. It was not till this modern period of "cheap and nasty" dentistry, that such a thing was thought of. And yet, in those early days, some nations at least, were not without dentists and dentistry. Inspection of the remains found in some ancient tombs, show conclusively, that they were conversant with methods of filling carious teeth, and even of inserting an artificial substitute, in cases of unavoidable mutilation.

Among the ancient Egyptians, dentists were common, though they formed a part of the medical profession. Herodotus says:—(Enterpe Cap. 84,)—"The art of medicine is thus divided among them: each physician applies himself to one disease only, and not more. All places abound in

physicians ; some physicians are for the eyes, others for the head, *others for the teeth*, others for parts about the belly, and others for internal disorders."

This author also gives an account of one of the most interesting dental anomalies of which there is any mention. He says :—(Calliope Cap. 83.)—“After the battle of Platea, and when the Plateans brought the bones together in one place, there was discovered a jaw, and the upper jaw had teeth growing in a piece, all in one bone, both the front teeth and the grinders.”

In all ages, the possession of a full and perfect set of dentures has been highly prized. Hear the opinion of the great satirist, Cerantes Don Quixote, after his famous rencontre with the shepherds, calls upon his squire to examine into the havoc made among his teeth, by the stones slung by his adversaries. “Pray sir,” said Sancho, “how many grinders did your worship use to have upon that side?” “Four,” answered the Don, “if not five; besides the eye-tooth; for I never in all my life have had a tooth drawn, or dropped out, or *rotted out by the worm*, or loosened by rheum.” “Bless me!” quoth Sancho Panza, “why you have in this nether jaw, on this side but two grinders and a stump, and in that part of your upper jaw, never a stump and never a grinder. Alas! all is levelled there as smooth as the palm of one’s hand.” “Unfortunate that I am,” said the Knight, “I had rather have lost an arm, so it were not my sword arm; for a mouth without cheek teeth is like a mill without a stone, Sancho; and every tooth in a man’s head is more valuable than a diamond.”

The teeth are frequently introduced as the foundation of some rhetorical figure. Montaigne uses them thus, to illustrate the same utter destruction which is spoken of in the Bible, as coming upon that which is crushed between “the upper and nether millstones.” Indeed the Bible itself is full of such passages. The prophet Amos uses the term—“cleanness of teeth,” as a synonym for starvation. Ezekiel and Jeremiah, to indicate in a periphrastic manner, the hereditary consequence of crime, say: “The parents have eaten sour grapes, and the children’s teeth are set on edge.” In Solomon’s song, the picture of the perfect woman is not complete without the verse—“Thy teeth are as a flock of sheep that go up from the washing, whereof every one beareth twins; and there is not one barren among them”—

referring to the appearance in pairs, of the teeth of the perfect dentition. Job says of his great peril—"I am escaped by the skin of my teeth." The torments of the last are indicated by St. Matthew, in the expression—"There shall be gnashing of teeth." Rabelais, however, paints the lily by representing that in the hereafter dentists shall figure among the tormentors; for he says that in the world of evil spirits—"the four sons of Aymon are tooth drawers." Thorean, the poet-naturalist, uses modern dentistry in a more complimentary simile; for he says—"The most of our expected ills are like the dentist's chair; much worse in the anticipation than in the actual amount of suffering experienced."

The importance of the teeth has always given birth to many aphorisms and proverbs in all languages. Of a fully-equipped soldier we say—"he is armed to the teeth." Of a pugnacious individual—"he fights tooth and toe-nail." Of a disputant—it was "proved to his teeth." A man is taunted by having a disagreeable fact "thrown in his teeth." One who, by adverse experience gains knowledge, is said to "cut his eye teeth."

The disease of teeth are often referred to in literature as amongst the most intolerable of the minor ills to which flesh is heir. Shakespeare says "I never yet knew a philosopher who could endure the tooth-ache patiently." Byron speaks of tooth-ache as the "Hell of all diseases." Dr. Johnson, the "Great Cham of Literature," said, "Laziness is worse than the tooth-ache;" thereby intimating that as the latter is the most unbearable of the bodily ills, so is the former the worst of moral diseases.

One of the oldest of Mother Goose's melodies (and few are aware of the antiquity of some of them) refers to a juvenile patient and his cure :—

" Little Tommy Grace had such a pain in his face,
So bad he could not say a letter;
When in came Sicky Long, singing such a funny song,
That Tommy laughed and found his face much better."

'Vishna Sarma,' that rare book of the Sanscrit, whose authorship is lost in the mists of antiquity, the teeth and their diseases are frequently used to point a moral. Here is one of the apothegms of that book :—

" It is better to tear up by the roots a rotten tooth, a faithless servant, and a wicked minister."

Small as these organs are, their relative importance has not, in literature, been over-rated. The whole process of nutrition is, to a large degree, dependent upon them. Situated as they are in the gateway of the alimentary canal, they meet the food at its entrance into the system, and their office, upon which the other functions are dependent, is the first to be performed. If the aliment be not properly prepared by mastication, it is useless for any purpose of nourishment. Mankind has had no need to be told this by the dentist, for there are few things so thoroughly accepted in literature as these truths, the practical application of which men so frequently ignore.—*Dental Register.*

Odontological Society of Great Britain.

ORDINARY MONTHLY MEETING, MAY 1ST, 1876.

CHAS. VASEY, Esq., President, took the Chair at Eight o'clock.

Quain's "Anatomical Plates," coloured, were presented by Mr. E. Saunders.

Mr. HUTCHINSON showed three new forceps, two of them being adaptations of well-known instruments. The other was an original invention for extracting lower wisdom teeth, when, instead of being vertical, they were in a horizontal position.

The PRESIDENT showed a model of a case which he had seen in a hospital. The patient was a child four years and three months old. An upper bicuspid had come down through the gum. It was loose, and causing a great deal of irritation. He removed it, and found it was very little more than the crown. It was evidently a case of arrested development, and was remarkable as occurring in so young a child.

Mr. TURNER described a case of dilaceration, where the anterior wall of the very wide pulp cavity had been ruptured. The margin of the root, which in consequence of the accident projected beyond the gum, had upon it a small edge of enamel, so that the enamel had been torn through as well as part of the bone of the tooth. The posterior aspect showed a wide pulp cavity with the withered pulp in it, but in front there had been an obvious occlusion of

the cavity. It seemed to him that nature had been endeavouring to repair the accident by building up a new anterior wall to the cavity. It at first looked exactly as if a necrosed temporary tooth had driven the permanent incisor downwards and backwards, instead of allowing it to come forward into its proper position in the arch. Exploration with the probe, however, speedily dissipated that idea. It was evident from the colour that the tooth was dead.

Mr. SEWILL showed a model of an impacted wisdom tooth. The wisdom tooth was coming through horizontally from the ramus and impinging against the posterior surface of the second molar. So close was the impact that it was impossible to explore the surfaces in contact with even the smallest instrument that would detect any decay, but on throwing in a syringe of cold water it was evident that one or both of the teeth were extensively carious, and the pulp was exposed. It was impossible to extract the wisdom tooth without the second molar; and in trying to remove the latter, both came out together. A large cavity was then visible in the posterior surface of the second molar, into which the crown of the wisdom tooth had gradually grown.

The PRESIDENT, in reply to a question, said there was no history of any injury in the case he had described.

Mr. RANGER mentioned a case of fracture of the lower jaw in a little girl three years old, who had been run over by a cart.

Mr. TURNER described a case of fracture of the lower jaw that came under his notice at the Middlesex Hospital. A child had fallen from a second floor window, and the anterior portion of the alveolar arch was knocked backwards and inwards into the mouth. He brought the lacerated portions into position as well as he could, and the patient went on well until the upper incisors and one lateral were cut and came into position very nicely, the teeth that were formerly lying almost horizontally on the roof of the mouth having been shed. The fracture in the lower jaw was very long in uniting; and remembering a case related by Mr. Vasey of retarded union caused by the presence of the crown of a permanent tooth between the surfaces of the fracture, he probed through a sinus which had been established just under the base of the jaw, and in the course of a little time he was enabled to remove the crown of the permanent canine tooth. Afterwards the case healed rapidly.

The PRESIDENT said in former years he continually used forceps, but more recently he had used the elevator in nearly all his difficult cases.

Mr. TURNER said however skilful a practitioner might be with the elevator, there were cases, such as the removal of upper molar roots when the crown was gone and the three roots were united, in which such an instrument as Mr. Hutchinson's excising forceps would be found very useful.

Mr. ASHLEY BARRETT then read a paper on "The Use of Disinfectants in Dental Surgery."

Mr. MOON differed from Mr. Barrett's statement that there never was tenderness of the tooth on pressure without the presence of putrefaction. There was such a thing as sympathetic tenderness which accompanied the inflammation of the pulp.

Mr. HENRY said there could be no question that carbolic acid was the most valuable agent that had ever been introduced to the notice of the Dental Profession. He also could not agree with Mr. Barrett that wherever a tooth was tender there was putrefaction of the nerve. He himself had recently lost a large double tooth which was exquisitely sensitive to the touch, but which on being afterwards split had no putrefaction of the nerve.

Dr. FIELD thought if the roots or the pulps were thoroughly removed with the barbed excavator, and the antiseptic treatment adopted, a case would hardly require six months before a cure was effected. There were, however, certain conditions where it was utterly impossible to save the tooth. Salicilic acid was extremely useful in obstinate cases.

Mr. UNDERWOOD advocated the use of creosote in cases of alveolar abscess. In several cases where there had been sinuses he had washed out the sac until he found the creosote exuding from the opening, and then and there plugged the teeth, with satisfactory results.

Mr. DENNANT thought failures in the antiseptic treatment arose chiefly from two causes, first, the trouble that anæmic patients gave, and next, the want of courage on the part of the practitioner in not thoroughly opening up the pulp cavity.

A MEMBER said he had lately used tincture of Gelsemium, in doses of 15 minims, in cases where pains had been felt after stopping.

Mr. SEWILL said he could hardly agree with Mr. Barrett that inflammation of periosteum was invariably due to septic poisoning arising from the gases which resulted from decomposition of the dental pulp. Inflammation sometimes extended in consequence of the continuity of structure from the pulp to the dental periosteum. He wished to know on what theoretical grounds Mr. Barrett based his use of carbolic acid and wool as a permanent filling. The carbolic acid would after a time disappear, and the roots would then be no better off than if they were empty. Tenderness frequently arose from injury where there was no disease of the pulp.

Mr. COLEMAN said the object of the antiseptic treatment, as introduced by Professor Liston, of Edinburgh, was to bring an unhealthy and suppurating surface into a healthy and healing state, and he thought the expression "antiseptic treatment" should be confined to such cases. In some instances, even the dentine was more or less saturated with putrid fluids, and then the most powerful antiseptics should be used, to act as arsenious acid.

Mr. MOON recommended the application of a hot instrument to the tooth to ascertain when the pulp had lost its vitality, and there was no tenderness on pressure or any discolouration.

Mr. COLEMAN said that test could not always be relied on, as sometimes a tooth, of which the pulp had been destroyed, was more sensitive to heat and cold than any of the adjoining teeth.

Mr. BARRETT, in reply, said he advanced his views of the pathology of periodontitis with diffidence, as he had not given much attention to the subject for more than five years; but he had made some experiments which led him to consider that his opinions were correct. He regarded tenderness in a tooth as evidence of periodontitis. The tenderness was caused by the membranes around the fang being inflamed, and that inflammation, he thought, was the result of the escape of particles of putrefied nerve from the opening at the extremity of the fangs, these particles being forced out by the gases generated through the process of decomposition. It was quite true that now and then a tooth might be tender, upon pressure, from other causes. If a patient had a rheumatic diathesis, there was a tendency to inflammation in the fibrous structures situated in various parts of the

body, and the fibrous tissues lining the interior of the sockets might sympathise in the inflammation that was more or less affecting all the fibrous tissues of the body. Occasionally, too, inflammation outside the tooth might be the result of a blow or a splitting of the tooth during extraction. Still, he believed, in 90 per cent. of the cases inflammation outside the tooth was due to putrefaction within it, and the escape of putrefactive particles from the extremity of the fang. The subject was of considerable interest, and was still, perhaps, *sub judice*. As a matter of fact, he had always found, after extracting a tooth which had been tender on pressure, and had shown signs of inflammation outside, that on splitting the tooth there was that characteristic odour of decomposition which, once recognised, was never mistaken. As to the question of the time required for the treatment of periodontitis, combined, of course, with a putrefied condition of the pulp, young teeth, such as six year old molars, took much longer than teeth 50 or 60 years old, the pulp and extremity of the fangs being larger, and a much greater mass of putrefied material being locked up in the tooth. He preferred carbolic acid to arsenious acid, as it readily penetrated to the extremities of the fangs, and perhaps found its way into the interior of the dentine. He could not understand how dentine could be putrefied, composed as it was of earthy salts and an organic matrix. When dentine was strongly foetid, he thought the odour arose from putrefied nerve locked up in the tubules contained in the dentine. He did not think carbolic acid would be dissipated, even in twenty years, if it was enclosed by a permanent stopping.

A vote of thanks to Mr. Barrett for his paper was unanimously agreed to, as were also similar votes to the gentlemen who had made casual communications, and the donors to the library.

AN ADDITIONAL MEETING WAS HELD MARCH 15, 1876.

CHARLES VASEY, Esq., President, in the Chair.

A communication was read from Dr. Jelly "On a Case of Symmetrical Pigmentary Deposit in all the Teeth of both Jaws."

The PRESIDENT said the appearance described was very unusual. He did not think it depended upon anything connected with the early development of the tooth, otherwise it would have been seen in different parts.

Mr. DE LESTER exhibited two upper incisor teeth covered with a yellow pigment, taken from a patient all whose other teeth were similarly marked without any apparent cause.

Mr. SEWILL thought that the discoloration described by Dr. Jelly could hardly be called pigmentation. He did not know that pigmentation was ever found in the tissues of the teeth except the deposit of colouring matter in caries.

Mr. WHITE thought that the staining on the teeth exhibited was only on the surface of the enamel, and did not involve the dentine. Probably resulted from some staining agent.

Mr. CHARLES TOMEs exhibited an abnormal tusk of an African elephant, which he had purchased for the museum. The abnormality, he said, appeared at first sight to have resulted from such an injury as was often inflicted on the tusks by natives, affecting the grey pulp; but he was inclined to believe that it was in reality due to some very early malformation.

Mr. CHARLESWORTH confirmed Mr. Tome's view as to the origin of the abnormal condition. He then exhibited a tusk forming part of the large importation of Siberian ivory made about two years ago in consequence of the great rise in the price of living ivory. For hundreds of years, he said, the fossil ivory of Siberia had had a certain amount of value in the market, but no large importation took place until the one to which he referred. The finest tusks fetched a very high price, but when they were cut up they were found to be worth much less than they had realised, so that the experiment had not been repeated. The exact position of the tusks in the head of the mammoth was not known, and he was at a loss to conjecture of what use they were to the animal. Mr. Charlesworth then exhibited a number of specimens from the Suffolk diggings. He stated that between Woodbridge and Ipswich there was a belt of country known locally as the Crag, consisting of a bed of shell-sand varying from forty to fifty feet in thickness. This sand had long been used by the farmers to spread over the soil, and the heavy soils had been benefited by it. A number of curious dark stones were found in the sand, and were formerly only used as road metal. In 1845 Professor Henslow suggested that they might be the fossil dung of sharks and other creatures inhabiting the sea, of which the Crag was the ancient bottom. The analysis of the stones showed that they contained 50 or 60 per cent. of phosphate of lime, and at Professor Henslow's suggestion they were ground, and on being spread over the land were found to have the effect of ordinary guano. There were now many millionaires in Suffolk who had made their fortunes entirely by converting these stones into manure. Although fossil shells and fishes teeth had been obtained from the Crag by naturalists for hundreds of years, it was only recently that the teeth of mastodons, rhinoceroses, hippopotami, deer, tapirs, and other land animals had been discovered. These were mineralised in a most beautiful way, quite unlike any of the fossil teeth from the ordinary Thames Valley gravels, or other deposits in which mammoth teeth were found. At the time when the Suffolk Crag formed the bed of the sea, the rivers carried down the carcases of land animals into the sea, where their flesh was probably devoured by the sharks and other fishes. The bones had disappeared, but the teeth remained mineralised in a perfectly unique manner. The most remarkable tooth was that of

the mastodon. When Hunter first saw it he said it must have belonged to a carnivorous animal, because the crown bristled with pointed cones, but it was now known that the animal was no more a flesh eater than the elephant. The crown of the tooth was traversed by a series of prominent high ridges which gradually wore down until the surface became almost as flat as that of the molar of an elephant. In the tooth of the English mastodon the crown was divided into ridges between which were supplementary cones that sufficed to distinguish the English from the American variety. Besides the teeth of land animals, there were also the teeth of spermaceti whales and grampuses mineralised in the same manner. He had brought with him a case showing the teeth of the living spermaceti whale cut vertically and polished for comparison with the fossil ones. He also exhibited a copper bullet found lodged in the tusk of an elephant, and a number of sections of the teeth of the walrus. Mr. Charlesworth further stated in answer to the President that he did not know the exact circumstances under which the Siberian tusks were found. Some of them were undoubtedly found in the ice. Such was the position of the famous mammoth of Siberia, upon whose flesh when frozen the wolves and dogs fed. He imagined that a large number of the imported tusks were taken from the frozen soil, but those that were well preserved and of which the ivory was comparatively valuable, were probably taken from the ice.

Mr. COLEMAN referred to another specimen of a bullet in an elephant's tusk, and stated that there was in that case a fistulous opening communicating with the exterior of the tusk.

Mr. CHARLES S. TOMES then read a paper "On the Attachment of Teeth, and on the Nature of the Alveolo-Dental Membrane."

The PRESIDENT said that he had long felt in teaching the want of a clear conception of the early development of the teeth. The development from the sac (as given by Goodsir), the enamel organ, and the papilla, always presented to his mind certain difficulties. According to previous accounts, when the tooth was erupted the sac and the enamel organ came to an end, whereas it was practically known that the enamel received a positive addition to its substance after the eruptive stage. He was glad to find that Mr. Tomes had given so clear a description of the early development of the teeth, for it was only by increased knowledge on that point that an advanced method of treatment could be expected.

Mr. TURNER said he had listened with great pleasure to Mr. Tomes' paper, which was one of a very practical character. With regard to the relation of the alveolo-dental membrane to the nerve pulp, he wished to ask if Mr. Tomes had thought of the question in relation to replantation or treatment by torsion in cases of irregularity. If Mr. Tomes' theory was correct, there was some reason why that mode of treatment should succeed.

Mr. COLEMAN said, Mr. Tomes' definition was the clearest ever given of the origin and formation of the alveolo-dental membrane. Having paid some attention to the subject of transplantation and replantation (which he hoped before long to bring to the notice of the Society), he would suggest that there was a better chance of success in the case of the rupture of a single membrane than in the case of a separation of two membranes which must afterwards unite. Mr. Tomes' remarks were very valuable and deserved the best thanks of the Society.

Mr. SEWILL said Mr. Tomes' researches entirely corroborated those of Legros and Magitot in regard to the development of the teeth ; and it appeared to him that the accounts of that development were now as advanced as the accounts of the development of any other part of the human organism, and had arrived at a point at which very little additional knowledge could be expected for some time to come.

The PRESIDENT, in bringing the proceedings to a close, said the members would agree with him that their best thanks were due to Mr. Tomes, and to the gentlemen who had offered casual communications, especially Mr. Charlesworth.

Correspondence.

We do not hold ourselves responsible for the views expressed by our Correspondents.

Dental Anæsthetics and Heart Disease.

TO THE EDITOR OF "THE LANCET."

SIR.—I have read Dr. Burney Yeo's letter on dental anæsthetics in relation to heart disease with much interest, and feel that he has mooted a question of the greatest importance to the profession and to the public alike. I am convinced that many dangers attendant upon the use of anæsthetics are often overlooked simply because immediate death is not the result of their administration. Considerable experience in the production of anæsthesia by nitrous oxide gas and the consideration of its action convince me that in many cases its use is attended with more or less risk, this risk not being sufficiently realised, inasmuch as the mischief wrought is subsequent to, not, apparently, coincident with, the inhalation of the gas. Dr. Yeo asks "whether the existence of great obstruction to the circulation in the form of valvular disease of the heart counter-indicates the use of anæsthetics ?" and if so, "whether nitrous oxide is an exception to the rule ?" To these queries I would answer that in all cases of heart disease the greatest caution should be exercised, though I do not think that valvular mischief is that condition in which its administration would be attended with the greatest hazard, nor would the mere absence of a murmur by any means necessarily be a proof of safety in its use. The explanation of the phenomena attendant upon the exhibition of nitrous oxide seems to indicate that the conditions of heart which would render anæsthesia by its means the most dangerous are those in which it is the subject of fatty degeneration, or those in which its structure is flabby, and its coats

relaxed. In cases of death from this agent the right auricle and right ventricle are much distended with blood, and there seems to be every reason for accepting Dr. George Johnson's explanation of its action—viz., that there is, first of all, obstruction of the systemic, followed by a greater obstruction of the pulmonary, circulation, and subsequent engorgement and dilatation of the right side of the heart.

Some recent experiments made with Dr. G. Johnson upon rabbits have convinced me of the truth of this theory, and, indeed, the phenomena exhibited in a person under the influence of the oxide support it quite as fully—firstly, the pulse is firm and tense; secondly, the pulse becomes imperceptible, and lividity simultaneously occurs.

Without entering into details, it may be briefly said that all symptoms may be explained by extreme contraction of the minute pulmonary arteries, with resulting over-fulness and distension of the right cavities and comparative emptiness of the left, the supply of blood and oxygen to the tissues being greatly diminished. In short, we have all the stages of asphyxia rapidly developed as a result of imperfect oxygenation of the blood.

Assuming these explanations to be correct, it is clear how much danger might attend the frequent administration of the gas in cases like those which I have characterised. About the distension of the right heart there is no doubt, and such a strain upon its parietes when enfeebled would alone be sufficient to accelerate disease, whilst death might be caused by paralysis of that viscus. I have seen one case in which there was intermittence of the heart's action for three weeks after anaesthesia induced by this agent, beyond which there was no sign of disease, the symptoms entirely passing off within the period mentioned.

Other conditions, such as hypertrophied tonsils, short necks in plethoric people, should all be considered in using nitrous oxide gas, especially where there is reason to suspect cardiac mischief. Finally, I believe it offers many advantages when used for short operations, provided that it be administered with caution and skill; but I fully agree with Dr. Yeo that "no unqualified person should be permitted to make use of anaesthetic agents," whilst I would warn those who do so of the consequences they would incur should any fatal accident arise—if a sense of their moral responsibility be insufficient to deter them from using agents empirically

which may be dangerous in the present, but still more so in the future. Medical men could prevent many of the dangers to which Dr. Yeo has alluded by warning their patients of the risk they run in receiving anæsthetics at the hands of those not qualified to administer them. He alludes with satisfaction to the new "Association of Surgeons Practising Dental Surgery." I trust that it may do much to elevate the status of oral surgery, not only by improving education, but by making all take a higher estimate of the legitimate scope of that specialty.

I am, Sir, your obedient servant,

S. HAMILTON CARTWRIGHT.

Old Burlington Street, May 1st.

TO THE EDITOR OF "THE LANCET."

SIR,—If you will kindly afford me a small space in your valuable journal, to answer some of the questions asked by Dr. Burney Yeo in your last number, I will endeavour to be as brief as possible. I think it is now allowed by the profession in general that, in those cases in which a capital operation is necessary, the shock to the patient is likely to be attended with more risk than attends the administration of an anæsthetic; hence, for my part, I should not decline to anæsthetise a patient suffering from any organic disease whatever. With reference to the special case mentioned by Dr. Burney Yeo, in which there was great obstruction to the circulation, in the form of valvular disease of the heart, I believe all will allow that any agent which increases that obstruction in itself, or adds to it, by taking away the power of the muscular force of the heart to overcome the obstruction, must have a deleterious effect; and therefore, in this case, the anæsthetist would do well to avoid using either chloroform or bichloride of methylene, which tend to depress the heart, and select nitrous oxide or ether, which add to the force of the heart's action and stimulate it.

It is well known that the emotion of fear may in itself be fatal in cases, without any cardiac mischief, and therefore, in answer to the second part of the first question, I would say,—before you proceed to the administration of any anæsthetic, endeavour to get the confidence of your patient, and let him feel that he can trust you, then put him *thoroughly and completely* under the influence of the anæsthetic. I believe there would be some risk if the

patient were only partly anæsthetised, for then the system would be cognisant of the unfelt pain of the operation, muscular rigidity take place as a reflex action, and thus, acting by pressure on the bloodvessels, causing greater obstruction to blood circulation, might produce a fatal result.

In almost all the patients who have given me a history of having been nervous and hysterical after some previous administration of the nitrous oxide, I have almost invariably found either that they have been pondering over and dreading the operation for some days, and passing sleepless nights, or that just as they have been recovering sensation, one or two teeth have been extracted, and although on awaking they will not remember anything about the operation, yet the unrecognised pain has produced a most intensely vivid and painful dream, the effects of which may have been persistent for days.

I have often given gas to patients in whom a loud cardiac bruit was present, and I have never known any ill consequences follow when the plan I have advocated above has been adopted. At the present time I regard nitrous oxide and ether as by far the safest anæsthetics in use; but I unhesitatingly say that, at some future time, if the practice of allowing them to be given by unqualified and incompetent persons continues, fatal results must be expected.

Having answered that portion of the letter which relates to the anæsthetic part of the question, I leave the remainder to be replied to by those dentists who are in the habit of attempting to do two things well at the same time—viz., administering the anæsthetic and extracting the teeth.

Believe me, faithfully yours,

WOODHOUSE BRAINE, F.R.C.S.,

Anæsthetist to Charing-cross Hospital and
the Dental Hospital of London.

Maddox-street, Hanover-square, May 2nd.

New Inventions.

A NEW OSTEOPLASTIC.

Messrs. Ash and Sons have brought out a new Osteoplastic, called the Rock Cement. It is even in texture, made in various tints, sets very hard, and promises well. How it will last time alone can show.

Its chief merit, as it appears to us, is the extreme uniformity of texture. This induces us to look forward to its being more successful than those that have been brought out hitherto.

THE DENTAL SURGEONS ATTACHED TO THE
VARIOUS HOSPITALS OF LONDON ATTEND AS
FOLLOWS:—

Dental Hospital of London	-	-	Daily, 9 a.m.
National Dental Hospital	-	-	Daily, 9 a.m.
Charing Cross	-	-	Mon., Wed., Fri., 9 a.m.
*German	-	-	Thur., 10 a.m.
*Great Northern	-	-	Wed., 2 p.m.
Guy's	-	-	Thur., 12 noon.
King's College	-	-	Tues., Fri., 10 a.m.
London	-	-	Tues., 9 a.m.
Middlesex	-	-	Daily, 9 a.m.
St. Bartholomew's	-	-	Friday, 9 a.m.
St. George's	-	-	Tues., Sat., 9 a.m.
St. Mary's	-	-	Wed., Sat., 9 a.m.
St. Thomas's	-	-	Tues., Fri., 10 a.m.
University College	-	-	Wed., 10.30 a.m.
*West London	-	-	Tues., Fri., 9.30 a.m.
Westminster	-	-	Wed., Sat., 9.15 a.m.

Hospitals marked * have no school attached to them.

DENTAL HOSPITAL OF LONDON.

CASES TREATED FROM APRIL 1ST TO APRIL 30TH, 1876.

Extractions.	Children under 14	-	-	-	341
	Adults	-	-	-	529
Under Nitrous Oxide	-	-	-	-	243
Gold Stoppings	-	-	-	-	150
White Foil ditto	-	-	-	-	26
Plastic ditto	-	-	-	-	238
Irregularities of the Teeth treated surgically and mechanically	-	-	-	-	22
Miscellaneous Cases	-	-	-	-	168
Advice Cases	-	-	-	-	125
			Total	-	1842

JAMES MEBSON, *Dental House Surgeon.*

The following Publications have been Received:—The Dental Register.—Johnston's Dental Miscellany.—*Le Progrès Dentaire.*—*Le Progrès Médicale.*—The Dental Cosmos.—The Pennsylvania Journal of Dental Science.—The Missouri Dental Journal.—Deutsche Viertel-jahrschrift.—Correspondenz Blatt.—Boston Journal of Chemistry.—The Dental Advertiser.—The London Medical Record.

TO CORRESPONDENTS.

ALL communications intended for the Editor should be addressed to the care of Messrs. SMITH, ELDER, & Co., 15 Waterloo Place, Pall Mall. All inquiries respecting Advertisements and Subscriptions should be sent to Mr. GEORGE BUTCHER, 4 Crane Court, Fleet Street, E.C.

THE
Dental Manufacturing Company,
LIMITED,

Have the pleasure to inform the Members of the Profession that they have purchased the Premises, Business, Plant, and Stock, &c., of the late

W. T. TAYLOR,
25 BROAD STREET, GOLDEN SQUARE,
LONDON, W.

To make the premises suitable for the extended business of the Company several important alterations and additions will have to be made, which will occupy till towards the end of May; but during that time, to meet immediate demands, business will be continued as usual.

Application Forms for Shares may be obtained at either of the Company's

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71A GROSVENOR STREET, MANCHESTER.

All communications for the Secretary (MR. R. BREWSTER) to be addressed, for the present, to 71A, GROSVENOR STREET, MANCHESTER.





